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THE HORSEOWNER

AND

STABLEMAN'S COMPANION:

OR,

HINTS ON THE SELECTION, PURCHASE, AND GENERAL MANAGEMENT OF THE HORSE.

BY

GEORGE ARMATAGE, M.R.C.V.S.,

ESSOR OF VETERINARY MEDICINE,

"THE HORSE: HOW TO FEED HIM," ETC.

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PREFACE.

That which we may denominate success in the proper maintenance of our working horses, is derived from careful management. This applies with equal force to *all* our domestic animals.

To preserve their health and vigour throughout long years of usefulness, a knowledge of their habits, capabilities, and peculiarities, &c., is required. He who possesses this is well armed, but he would be more perfect in having the ability and disposition to apply it directly towards the mitigation of evil consequences which, alas, swell up the mortality lists to a fearful degree. It should, in all cases, be the end and object of the attention bestowed upon them.

Great misconception prevails upon this point. Disease and death continually occur among our valuable animals, and owners have almost accepted the results as inevitable, from which there is no escape. "The steed is stolen," and fruitless attempts are made to rectify mis-

takes by the application of remedies which may not only prove useless, but even very aggravating.

An old axiom has advised "Every man to his trade." It should be inscribed in legible characters upon the walls of every building in which our domestic animals are kept. Prevention of disease and mortality frequently consists in a respectful observance of the hint, and dangerous consequences are thereby commonly arrested or mitigated.

Since the issue of a small work* uniform with the present volume, designed to draw especial attention to the benefit and essentials of good management in one department only among horses, it is gratifying to learn that the object of the writer has not been overlooked by the numerous readers. While the question is one purely of scientific interest, and recognised as such, the desire has become intensified that further information should at once be placed in the hands of those who carry out the practical details. For this purpose the present treatise has been asked for. Proprietors wish to have re-

* "The Horse: how to feed him, avoid disease, and save money." London: F. Warne and Co., Bedford Street, Covent Garden.

duced to plain language the formulæ of scientific deduction, that "he who runs may read," and thus extend a principle which is being daily more and more acknowledged as pre-eminently useful and beneficial.

We, however, incur great risk in becoming dogmatical. It is more easy and pleasurable to establish opinions on the foundation fortified by repeated accessions of scientific memoranda illustrating cause and effect; but we cannot wait to follow the intricacies of the path, *results* only must be described, and the mechanism by which they are arrived at carefully shrouded from the view.

Whether such a conclusion is justifiable, the keen sense of the public will rapidly demonstrate.

The useful being constantly aimed at by the author, he can only hope his efforts may be accepted as heretofore by his numerous readers and the press generally, whose comments have been of the most flattering character.

Leighton Buzzard,
September 14*th*, 1868

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THE HORSEOWNER

AND

STABLEMAN'S COMPANION.

THE SELECTION AND PURCHASE OF HORSES.

The arduous nature of the various conditions which attend the selection and purchase of horses, is generally understood and acknowledged even by those of little experience. There is no subject upon which buyers so often feel the greatest need of assistance and advice, and, at the same time, where greater difficulty exists in rendering these profitable and acceptable. Circumstances may arise, phases previously hidden may appear, or gratuitous interference disturb the aspect of affairs, and thus begin all the troubles and vexations which too commonly supplement the efforts of those in search of a horse.

The *tricks of low and disreputable dealers* render the process at once tedious, harassing, and difficult; while the subsequent ordeal may be fairly represented as being irremediable as well

as inevitable. Purchasers at fairs are greatly exposed to the practices of such rascals, who never fail to secure both animal and money in the end, and thus provide the means of constantly possessing a trap wherein unsuspecting persons easily fall.

Some years ago a hard-working honest man, well known to the writer, attended a fair in Yorkshire for the purchase of a cart-horse. He was by no means a bad judge of the physical characters required in the animal sought, and soon his eyes fell upon one in which was concentrated, to all appearance, the qualities so essential for the purposes. Price being asked, and the animal shown through various evolutions, no objection was found. Accordingly a purchase was made and the horse led away.

The new owner had not proceeded far before a stranger, to him at least, stepped up and offered a small sum for the horse, adding, "You'll not like to take him into your stable as he's 'blaundered'" (*i.e.* glandered). And thus he continued to pester the poor fellow, while others privy to the game joined at various stages on the road, and kept up the spirit which was to secure again their prize.

Upon examination the animal was found to be a most confirmed roarer—in the language of the dealers, said "to have the bellans"—and had been *drugged* in order to cause the defect to pass unobserved.

Upon another occasion a merchant purchased a very eligible-looking animal for his cart, giving rather a high sum to a person who represented himself as a well-to-do farmer in the neighbourhood. A warranty of soundness was drawn up by the vendor, signed and transferred at the same time, and a groom removed the horse to his master's stables. For days several men—of course members of the gang—lingered about the premises of the merchant, offering various small sums, declaring the animal to be affected with glanders. The merchant took no notice for some time, but at length said he was very glad he had obtained such an animal, as a friend of his wished to have him, in order to catch the dupes at fairs. This spurred up the gang, who, rather than lose their profitable horse, actually purchased him back again at a sum very little below the original price. This animal was found to be affected with a chronic discharge from one of the nostrils, which had been arrested during the purchase by a *piece of tow* pressed up the passage for the purpose.

These tricks are very commonly practised, and suffer modification in order to render the end more easy of accomplishment. A horse but slightly lame in a forefoot is "beaned."

This consists in paring thin the sole of the *opposite* forefoot near the toe, and replacing the shoe, having first put a small pebble beneath it. It has the effect of rendering the action of both

fore legs nearer alike, and if properly done succeeds in causing animals to change hands frequently.

Another species of fraud consists in filing down the wearing surface of the front or incisor teeth of old horses, and graving hollows to resemble those of young teeth. This is called "bishoping," but by those who study the form and angularity of the teeth, as well as the varied changes which they undergo throughout advancing age, the trick is easily detected. Young horses are also practised upon, in order to palm them off at a higher price as being four or five years old.

Many breeders who aim at respectability are foolishly tempted to carry out this fraud, which consists in extracting the corner, and sometimes the middle incisor teeth. At best it is but a very clumsy and barbarous plan, and signally fails to produce the appearances desired. The custom is so prevalent in Ireland and other parts among dealers, that it cannot long fail to attract the attention of the Society for Prevention of Cruelty to Animals, and, we hope, meet with total abolition.

The signs of age are otherwise dealt with, in order if possible to obliterate them. The measures, however, seldom succeed before a practised eye. In animals of great age, large depressions or hollows are found above the eyes, and *horse-copers* prick through the skin and blow in air, as butchers inflate the carcass. For a

time the hollows disappear, but are seen again when the air is absorbed or has escaped.

White places, such as a star, stripe, or blaze in the face, white heels or fetlocks, and patches of white hair which are found on the knees and other parts indicating previous damage to the skin, are painted or dyed with coloured solutions. This is called "gypping," and is recognised by the different shades employed and dissimilarity of colour to that of the hair over the rest of the body. Besides, it is usually found to wash off or gradually disappear with subsequent growth of hair.

Animals affected with broken wind are dosed with shot and fat, under the false belief that the former by actual weight causes the stomach to "hang away from the lungs," and the latter "lubricates the air-passages." Neither, however, succeed with the practised veterinarian. The dupes who suffer from these frauds are usually men who rely upon the so-called judgment of one representing himself as a friend, and who contrives to come upon the scene at the moment when his opinion has greatest weight. Under these circumstances, if the purchaser misses an animal which is either "broken-winded," "bishoped," "gypped," "puffed," "blaundered," or has the "bellans," he may have secured a more worthless prize in the shape of a dangerous brute that will shy at everything on the road, kick and bite, plunge and rear or run away, after the passions are

relieved of the powerful drugs which have been used. Otherwise he obtains one lame in the back, called by the rogues "a kidney dropper," or another having a nervous affection and known by the term "shiverer."

These, however, by no means complete the category of defects which hang to the horse. There are others which form admirable qualities for the low horse-coper whereby to catch the unwary purchaser, but even these are sometimes met with in animals coming from other sources; and while I am desirous of letting all have the benefit of a doubt, if such there be upon the question at issue, it is, I think, too much to believe that such screws are always produced in ignorance.

Being in want of several heavy draught horses upon one occasion, I presented myself at the stables of a certain dealer and made known my wants, but did not discover my profession to him. "All right, sir," said he, "I have just your sort;" and addressing his satellite, "I say, Bill, bring out them 'ere cart 'osses in the little stable. Look there, sir," he began, as the creature was being led out of the doorway, "you never put a collar on sech a piece o' stuff in all your born days. Talk o' pullin, sir, why I never had sech a 'oss to pull. I have been a dealer off an' on for the last forty year, an' I don't know as I've had such a bit o' mettle. Put him alongside the wall, Bill! woho, now! There! look at his legs, sir! sech pints for a cart 'oss! why, he's like

waxwork itself! talk about simmertery, did you ever see sech as that? I'm blessed if I ever seed sech a splendid carcass on sech strapping lims, an', lor bless you, the money's nothink. See him trot, sir? why, he moves like a pony. Now, Bill, where's your ginger? look alive, my boy; don't keep the gentleman waiting."

"Excuse me, sir," I remarked, "you will have the goodness to spare the animal the torture about to be inflicted; it affords me no gratification, it will not enhance him one atom in my estimation, and let him return to the stall, as his qualities are not suitable for my purpose."

Rather crestfallen, the dealer said, "All right, sir, I'm sorry, but we'll show another."

A second and a third were brought out, and successively rejected, when the dealer remarked, "You seem raythor queer to please, sir." "Not at all, I assure you," was my reply. "Then why can't you take these 'osses?" and he was about to go off express again in canting description of their virtues and other qualifications, when I cut him short by saying, "Upon all occasions when purchasing horses, I endeavour to obtain *sound* animals, as they suit our purpose much better. I prefer them without spavins, ringbones, and other prejudicial bony deposits in the neighbourhood of important joints, as the work they are put to usually is sufficient to cause them to appear soon enough."

He flew into a wild and violent passion, and

declared I wished to take away the character of his horses, and what was more, called me a muff, and a fool, as his horses were perfectly sound, and I could not know whether they had spavins or anything else, as I had not put a hand upon them. He was, however, brought to a little, by my telling him the statement was much the worse for him if the defects were so plain that they needed no manipulation to confirm the appearances already present. He protested, however, his ignorance of anything wrong, and I advised him to take them to a respectable veterinary surgeon for examination, and show me the report. I here handed him my card, when he became perfectly silent, and got out of my sight as quickly as possible.

Later in the day several friends, at my request, called upon the dealer and inquired for animals of the kind. All that I had seen were brought out, and upon each occasion declared as before sound and immaculate.

To say there are no honest horse-dealers would be a gross calumny, but I must express my suspicion that many are so accustomed to chant the praises of sound animals—that is, sound to the best of their knowledge and belief—that one may ascribe such a mistake as just related to a *lapsus linguæ*. We must therefore look over it accordingly, and of course at the same time the animals upon which such vile praise has been bestowed.

Amongst the defects which are found to lessen the value of horses as well as their usefulness, are diseases of the eyes. An ordinary observer may regard these organs as perfectly sound, and their appearances justifying purchase, but alas! finds the animal either suffering from impaired vision, or, may be, totally blind. In such cases the ears will be observed to be carried forward, and their movements are exceedingly rapid, and the eyes staring, the central opening or pupil being wider than in health, and colour of the organ probably being blue or yellow. Other conditions are present, which however are only to be detected by those conversant with the different structures of the organs.

Chronic cough, disease of the lungs and heart, stomach, liver, &c. now and then is found to be present. Malformations, the result of accident or vicious propensity, may be detected; or the beast may be a crib-biter, or wind-sucker, washy, and a bad doer, no matter what he gets to eat. Whatever may be his qualities at work, in the stable he may be a perfect demon, or he may unite the kicker at work, with the "jibber," or one that will not draw.

Another may be as gentle and docile as a lamb in the stable, quiet in harness or under the saddle, and capable of doing the highest rate of speed with action and grace unparalleled, but the pleasure of sitting behind such a creature is marred by the fact that on reaching the stable

the appetite is gone. The animal is overdone; and be careful as you will, the scene recurs after each journey, and is sometimes supplemented by irritation of the bowels, colic, &c.

Several days are passed before the animal is pronounced safe for work, or still further cause for dissatisfaction appears in a variety of ways; and no other conclusion is justifiable, than that the animal has been sold on account of these faults. He is sold again quickly if death does not prevent the opportunity.

In the multitude of conditions which render horseflesh (in a state of animation, not as chevaline *à la mode*) such a ticklish commodity, one cannot but be surprised at the few opportunities there are to avoid the disagreeable consequences. Many purchasers, relying upon their judgment alone, make fearful work. They know nothing of the nature, form, or habits of the animal they seek, and consequently become very lucrative victims. To purchase horses in a profitable manner requires much tact and judgment, and a knowledge of their structural anatomy is indispensable towards detecting blemishes of different kinds. Much practice is also required, but this alone will not do, as we have often known horse-dealers of forty and fifty years' experience quite as easily taken in as other people.

Bribery in horse-dealing.—Like horse-racing, horse-dealing practice is carried on more for the emolument derived, than for any desire always to

distribute a good and serviceable breed of horses. Many patronize the turf under a mistaken idea that present systems improve our breeds of horses, but by far the majority have personal interest only to serve. Horse-dealing often assumes the latter in the blackest dye. Upon the turf, races, horses, riders, and owners are *sold*, and in the trial ground of many dealers the like also occurs.

"What do you want for that pair of carriage horses?" said a veterinary surgeon to a large dealer not long ago. "Well, look here," replied the owner; "all that will depend upon what you require as premium. I can afford to make it worth your while, only state what you wish." "Well, suppose you wanted one hundred and fifty pounds for the pair, what premium could you afford?" "Twenty pounds," said the dealer; "but if you will get your client to stand two hundred pounds, I can then give you fifty."

This statement is nearly verbatim as received from a great friend who was employed to select a pair of horses for a gentleman, who being in attendance as previously requested, was thus informed how he might have been sold if he fell among thieves.

Bribery is one of the greatest banes which waits almost upon every transaction in reference to horses. They cannot be shod, physicked, sold, nor exchanged, but a host of parasites hover round, "for wheresoever the carcass is, there will

the eagles be gathered together." If there were no receivers of bribes, there would be no one found to offer them. Under the system the security of property is sacrificed, and its substance eaten out as by the canker-worm to the very core.

A dealer in horses called upon a veterinary surgeon in one of the largest towns in Yorkshire, and promised to send for examination all the horses he had for sale, providing they were *passed as sound, backed by a certificate to that effect, and the fee did not exceed five shillings.* In addition, the considerate rascal offered to dispose of any screw which the other might have on his hands.

Upon making inquiries, it turned out that an unfortunate individual who had lost all sense of honour and decency, had fallen into this great error. From intemperate habits he was not always available when required even to write a certificate without examination, and his patron was desirous of finding some one to supplant him, but in his application barely escaped being kicked out of doors.

Warranty.—By some there is entertained a great but fancied security in a warranty. Half that are given are but as waste paper. Many cases are on record which prove this: one will suffice. A warranty of soundness had been given with a horse having spavins and side-bones, and there were not wanting witnesses who would swear no such morbid conditions existed. A law

case followed, but as usual, he who won, actually lost. The defendant, although guilty and convicted, was not worth the paper upon which the summons was printed, and a poor widow was doubly a loser in consequence.

Under such circumstances a warranty is of no service whatever, and even in others where there is no actual fraud existing in the transaction, the opinions of many upon the existence or non-existence of defects, and the constitution of unsoundness, being at variance, much trouble and vexation occurs. Nor is there any likelihood of help from the law to be expected in future, at least as far as can be seen at present. As science advances and receives its share of encouragement from the government and public, definite conditions relative to certain diseases may be insisted upon, but under present circumstances a warranty affords but very slender protection, and is an instrument of little power where the parties concerned are determined to be fraudulent.

Certificates of Soundness.—A very common mistake occurs with many when purchasing horses; that is, to seek a veterinary surgeon's opinion *after* the contract is completed. This does not always occur only with low-priced animals, but frequently with those of high value. They are examined and found defective, but there is no help in many cases, and the affair amounts to so much money absolutely thrown away. Purchasers who desire a professional opinion upon the sound-

ness of horses, should *always* obtain it *before* the animal becomes their property. The proceeding is advantageous in many ways, and much trouble and petty annoyance is avoided.

In Ireland, in nearly all transactions in which horses are concerned, the purchase is effected on the result of an examination by a qualified veterinary surgeon. The principle is more in favour in England than formerly, and if properly conducted, many legal quibbles are undoubtedly avoided, as well as the loss of time, money, and reputation, and hard swearing on both sides. In practice, the proceeding also proves more profitable than even a written warranty. If the animal is sound, he is at once removed and the money paid; if the reverse, no transaction occurs.

The certificate given by the professional man proves as powerful as a warranty; because in the event of unsoundness, the dealer cannot sell his horse. In case the animal is sound, the purchaser receives an assurance to the effect, and nothing further is needed, as the whole thing hinges upon the question.

Recommending Horses.—No greater mistake, in the author's opinion, can be made by a professional or other person, than that of recommending horses. Many horse proprietors are totally ignorant of the nature, habits, capabilities, and resources of a horse, and in eager search for a desirable animal, meet with a friend who sin-

cerely and honestly recommends one which, *were he to drive, feed, and house,* there can be no doubt would prove all that is desired. But, alas! as soon as the new purchase is made, the elated proprietor, well posted in all the good qualities of the creature, takes him to his own stable. No attention is paid to the different characters which exist in contradistinction to the one just left; and, it may be, a case of cold, influenza, or something worse, soon appears. The feeding may be different, and produce colic, and even death. If, however, he escape all these, the owner rides or drives out, in order that his good lady may give her opinion.

Afterwards a friend in the next street is appealed to, with probably fifty others, and at last a friend in the country. All are particularly knowing, or at least appear to be so. One sees a spavin, another a splint, a third thinks he is lame; a fourth thinks he hears a slight noise, as from roaring or whistling. And thus the game goes on, the owner fishing for compliments upon his judgment and selection, while none of the persons consulted are disposed to pay any, but feel, if they had been purchasers, the animal would not have been selected by them.

In order to detect the lameness or the fancied sounds so offensive to the ear, it is suggested that the animal shall be galloped. The owner tries his best, but fails; the friend who suggested the defect also mounts or takes the reins, and pell

mell the animal goes again. He may not be found a roarer, but probably *he is found lame.* Then comes the tug of war. All agree to swear to the lameness; which is of course believed to occur from conditions present at or prior to purchase. Recriminations pass, the vendor is declared not to be honest, and he who recommended the animal pronounced as being actuated by selfish motives. Money is wasted in useless law squabbles, no one but the lawyer reaps profit, while vexation crowns him who wins as well as him who loses.

Precautions to be observed.—When it is desirable that a horse should be purchased, recourse should be had if possible to the farmer or breeder usually possessing the character of animal required. If this cannot be done, there are to be found dealers who know it is to their interest to give purchasers every advantage in scrutiny. When a suitable animal is found, seek the opinion of a qualified veterinary surgeon, who for a guinea will give the results of a careful examination, and if he cannot advise as to purchase or put into your hands a genuine horse, he will at least be able to save you from a worthless screw.

Remember also there are circumstances regarding the future treatment and *work* to which the animal is subjected. These should form a subject upon which your veterinary medical adviser is to be consulted afterwards. Let him advise as to these, and depend upon it another

source of vexation is thus avoided. It is far better to pay for advice suited to each particular case, than to receive a course of drugs in after time, and pay dearly for a horse in hospital labouring under disease which for one-tenth part of the expenses might have been avoided most certainly.

STABLE MANAGEMENT.

The secrets of success in profitable stable management are *punctuality* and *regularity*. These contribute towards *the system* which is so particularly required. Without them, it is an utter impossibility for proper attention to be directed to all the details which call for notice, while nothing will operate as prejudicially upon the health of animals.

Stable management will receive a due share of consideration under several heads throughout the present work.

Early operations in the Stable consist in first making a general examination of each animal, particularly those which have been tied up by halters or chains in stalls.

This is useful in order to detect injuries from being cast or loss of shoes during the night, and to detect signs of disorder or illness, which if present are best reported *early*, on the principle that "a stitch in time saves nine."

A careful inspection having been made, the animals are watered and fed, and while they are consuming their food the bedding should be turned up, and stalls and other parts carefully swept out. Any time remaining may be devoted to the examination of harness, in order to secure the cleanliness of pads, &c., observe defects, and have

them remedied if possible. As soon as the food is consumed, the operation of cleaning is to be carried on in good earnest, which done, harness and prepare for daily work.

In large establishments it is most profitable to employ a horsekeeper, who, having charge of the provender and stables, enters at a certain hour, say five a.m., and feeds the whole. Each driver as he arrives, then turns up the bedding, examines the harness and cleans his horse. By this plan animals are better cared for in the feeding, and much waste is avoided.

The duties of the horsekeeper are, during the day, to see that the stables are cleaned thoroughly, receive all horses coming to *bait*, and see to the feeding of the whole at night.

Each horse as he comes from work is carefully examined by him, also the harness, and if nothing calls for other treatment, the animal is led to his stall, watered and fed, dressed down by the driver, bedded and left for the night. The horsekeeper has also to see to their being safely tied up, all gaslights turned securely off, and report any irregularities, lameness, disease, &c., which he may observe.

In hunting and racing stables modifications exist, and, to the credit of those at head quarters, we are able to establish the principles by which punctuality and regularity may be caused to work so much good. Many ailments of the farm or cart horse are unknown in hunting or racing

stables. And why? Simply from the fact that animals there are fed, worked, or exercised with the clock. If these principles pervaded the minds of those who keep and work, or drive carriage, cart, and cab horses, there would be less of those serious consequences which so often arise and mar the prospects. A young man in the racing or hunting stable, goes through a kind of apprenticeship, by which he becomes *au fait* at his duties, and habits of regularity are enforced. If coachmen and grooms in general had such training always, we should find that stable management in our towns and villages would be a question upon which there would be but little to condemn. In no other horse establishments is there such wanton waste and carelessness, or where the results are more inconvenient and harassing.

In hunting and racing stables the morning hour is from five to six o'clock. The horses are to be fed and watered, bedding turned up, and stables swept. Those animals going to work are next thoroughly dressed, and afterwards receive a small feed of corn if their work is likely to be hard and time will permit. Others merely going for exercise are wiped over and taken out for the prescribed time, and on their return receive a little hay, are clothed, have their feet examined and washed, and by this time is the hour for breakfast.

The grooms on their return to the stable dress

over their horses thoroughly, clothe, put the stable neat after sweeping out all manure, throw down a light clean layer of straw, rack up, and leave for outside duties. At noon, corn, hay, and water are given to resting horses, and the stable again locked up. Other animals coming from work are fed and dressed on arrival.

At four o'clock it is the custom in some stables to feed again with corn; the plan in the main is very good. At seven or eight o'clock each horse has his clothing removed, is carefully wiped down, and reclothed. Clean or dry straw is thrown down for bedding, the stable utensils carefully put away, and water, corn, and hay supplied. Collar chains, head collars, and halters should be carefully examined, in order to test their security for horses tied up with them.

See that in loose boxes there are no gas brackets at which the horse can get. It has been known that playful animals have turned on the gas and caused their own death from its inhalation during the night. Boys should be cautioned against leaving pails in stalls or boxes, unless specially ordered and required.

Among cart horses, cab horses, &c., which remain an uncertain length of time from the stable, *the nose-bag* is of great service. It has, however, defects, one of the most important being detrimental to respiration. The material of which it is usually made is strong and of too close texture; a coarser and pervious material

would be an advantage, and avoid the necessity of breathing over and over again the same air, by admitting a current through the meshes.

Watering.—Much variety of opinion exists in reference to the quantity of water which should be allowed the horse. This must depend upon circumstances. To define a special rule for all animals would be as absurd as its carrying out would be impossible. Animals sometimes drink ravenously, and the cause will be found to arise from the stupidity of grooms in not allowing sufficient at proper intervals. In Switzerland, horses are allowed water in a separate tank, in their stalls, usually supplied from a running stream, and the results are said to be useful.

The writer has given the plan a fair trial years ago, and has found that where a given quantity is regularly placed before a horse, if no morbid thirst be present, the actual daily quantity consumed is much less. But when stated intervals are not observed, or irregularity in watering occurs, the quantity is often enormously increased.

It is from this circumstance that inconvenience and even danger arises, particularly when the animal is allowed to satiate his thirst before severe work, when over-heated, or the stomach is previously overloaded with food, particularly when water is very cold.

The practice of depriving hunters of water before going to cover is objectionable. If the rules of feeding and watering are observed with due

regard to time, excessive thirst will not usually occur.

Harness horses and hacks used on long journeys are greatly relieved by small quantities of water in which oatmeal or barley meal is suspended, given when rest is allowed; about two quarts of water with a handful of the latter being sufficient.

Horses at rest should be watered at least three or four times daily.

The practice of putting nitre or other saline materials in the water, is not to be carried on indiscriminately. The advice of a veterinary surgeon should guide upon that question.

The purity of water is a question which should always be established where animals are to be kept, and particularly where new sources are opened out. There is frequently greater reason to attribute disease amongst stock, and even human beings, to the water with which they are supplied, than is generally known.

In sinking wells never select any place near to drains or ditches, privies, and manure heaps; avoid also gardens or fields. The danger which occurs is traced to the entrance by percolation of the compounds which are formed as the result of putrefaction of manure and animal and vegetable matter in general. Not long ago a whole family was continually suffering from attacks of fever, which, as usual, was for some time attributed to the atmosphere. Subsequently it struck the

owner that the water might be at fault, and accordingly sent some to an eminent chemist, Dr. Penny, of Glasgow. Upon examination, that gentleman detected a great proportion of substances, the result of putrefactive changes in animal matter, which were proved to have been conveyed by the manure to flower beds in the garden upon the sides of the well from which the water had been used.

Such water has a brackish or saltish taste, and is sufficiently conspicuous to be easily detected and lead to its being avoided.

Water may also contain mineral poisons. These, however, occasion serious symptoms of disturbance, for which a veterinary surgeon will be needed to give the necessary instructions at the time.

Cleanliness.—Too much cannot be written or urged upon this point. Many disorders and ailments can be traced to a neglect of it. Holes and corners which cannot be got at regularly should not be permitted in a stable.

It must be borne in mind that the food, dung, urine, straw, &c., used in stables are all capable of generating unwholesome gases, by their proneness to putrefaction when lying about.

These materially interfere with the circulation of pure air, and in consequence the health of horses and men suffers. In order to have them removed, the bedding should always be taken from the stall, and in fine weather spread outside

if possible. The dirty portions are to be separated, the whole of the floor and drains thoroughly swept out, and every portion of refuse carefully removed to a manure heap at a distance from the stable.

Mangers should always be well cleansed—especially wooden ones—after the use of mashes or soft food of any kind. Woodwork of all kinds, and even harness and clothing, require cleansing after the existence of contagious skin or other diseases. For this purpose a solution of black or pearl ashes may be used, the strength however being varied for the several purposes.

For harness, clothing, and *painted* woodwork, two or three ounces to a pail of hot water will be sufficient. But to *bare* woodwork the strength may be quadrupled.

Besides this it is sometimes necessary to use *disinfectants* of a special character.

For the floors, crude carbolic acid in solution may be sprinkled over the surface, and the whole afterwards well scrubbed with hot water having black ashes in solution.

A solution of crude carbolic acid is also eminently serviceable for the mangers when contagion is feared. The proportions are about one pound to a gallon of water in which soft soap has been dissolved, with the use of large quantities of pure water afterwards. A grand agent in the purification of the atmosphere of stables is M'Dougall's disinfecting powder, which should

be thinly spread over the stall floors and other parts wherever dung or urine has been deposited.

The prices to be paid for these articles are, for black ashes about 2½d. per lb.; M'Dougall's disinfecting powder, 10s. per cwt.; and crude carbolic acid, 2s. 6d. per gallon.

When contagious diseases are known to arise in a stable, remove the diseased animal at once. Carry with him all harness, clothing, stable utensils, &c., which have been used for his purposes; do not use anything belonging to him for another; and those in attendance upon him should not go into the stable where healthy animals are confined.

Lastly, carry out all injunctions which may be given by the veterinary surgeon in attendance. He has many strong reasons for enforcing regulations which may not be understood by others. Upon these his success depends. Grooms should therefore strictly act in concert with him, and faithfully carry out his desires.

Lighting of Stables.—One of the greatest causes of a want of cleanliness is the absence of light in stables. It also gives rise to other inconveniences.

When stables are badly lighted, or have no windows, dirt accumulates, foul gases are formed, and the animal's health suffers in consequence. In dark stables the men cannot see to clean the floors properly, the air becomes impure, and ventilation interfered with. During the night,

when the doors are closed, the animals are nearly stifled, they become too hot and easily take cold. They also suffer from diseases of the eyes and lungs, and in the end not uncommonly die, or require to be destroyed on account of glanders. In the morning, when the doors are opened for carrying on the operations of the stable, the air is penetrating and suffocating, and while these go on, draughts of cold air in winter produce baneful effects.

Wherever such stables exist they should be altered, large windows and ventilators put in to admit nature's great purifiers, *light* and *air;* they are relics of a barbarous age, and ought to be razed to the ground in numerous instances.

Ventilation of Stables.—Upon this question also there is every conceivable and contrary opinion. It is a subject which urgently calls for scientific memoranda, in order to apply the principles directly and practically.

An acquaintance with the laws of gaseous diffusion, draught, heat and cold, &c., at once shows that one principle of ventilation will not admit of being applied to all buildings. This is particularly the case with stables in large towns. The close proximity of other buildings, together with their irregularity of form and arrangement, greatly interfere with plans. It is therefore a matter of concern, and one not to be hastily or inefficiently adopted.

Buildings closely surrounded by others or

lying at low levels, those also having hay lofts, *always* call for a more extended arrangement than isolated ones. In the latter also there is great danger to be feared from reverse currents when the wind sets in any particular quarter.

The object of ventilation is to afford a plentiful supply of pure air to every animal in the building, to maintain an *uniform* temperature, and prevent the occurrence of cold draughts, or currents. To effect these, various plans are carried out :—

1st. Holes are made in the wall over each horse's head, opening to the outside, being about the size of a brick. These are either occupied by wood or cast iron frames and gratings, or are faced with wire gauze or perforated zinc.

2nd. Holes are also made opposite, but near the ground, and similarly protected.

3rd. Louvre boards are placed in windows at the side, or in raised portions of the roof, which also act as a skylight.

4th. Swing windows and skylights are also used to open at pleasure.

5th. Ridge tiles are raised at intervals, so that a space is formed under each, communicating with the external as well as internal air.

6th. Hollow stones or pillars are in some cases placed in the outer walls, having an opening to the external air at the bottom on the *outside,* and another at the top on the *inside.*

7th. Shafts or tubes of wood or zinc, &c., are used to discharge the foul air from the roof.

However good these may appear in theory, it is found that in some buildings the greatest difficulty exists in procuring ventilation. Let the arrangement and device be what it will, we shall find that sometimes the air will refuse to come in or go out through these scientific labyrinths, and at others it ruthlessly traverses them in fitful gusts, and deeply offends by going in an *opposite* direction to that intended.

The atmosphere is as insensible to human orders, as the sea was to Canute and his flatterers. Any number of shafts may be placed in a building, and all the arrangements named carried out, but mortification will come at the end. And not only mortification from an inability to carry out practically details which are taught in theory, but feeling of a more intense character, it may be as disease continues to devastate the stock or prolong the weakness arising from it.

The writer has succeeded in efficiently ventilating stables in the following manner. Where disease and mortality had extensively occurred previously, it is gratifying to state immense improvement took place. Coughs and colds, diseases of the organs of vision and respiration, were reduced to a minimum by the plan.

In stables where ventilation is effected by hollow bricks, &c., over the animal's head, where shafts are carried through a hayloft to the roof, and other appliances exist, *cold currents* are apt to go in the opposite direction, and thus produce

not only defects in ventilation, but serious disease in the animals.

The small amount of pure air thus obtained, frequently proves as injurious in another way as the foul air within, thus establishing the dogma of the couplet—

> "If cold winds reach you through a hole,
> Go make your will, and mind your soul."

The plan, then, which has succeeded, was to arrest the back current and ensure a constant discharge in one direction only, while a fresh supply is received in an opposite part of the building.

Where ventilating bricks occur, a piece of thin leather was nailed to the top of the frame, *on the outside,* so as to form a kind of valve, the lower end hanging loose and floating. In long ventilating shafts which were formerly open at the bottom, a short tube of three-fourths size is made, about a foot long, the top being closed, and the sides perforated by holes bored with an inch and half centre-bit.

The holes are protected on the *outside* by means of a flap of thin leather nailed at the top edge to form a hinge, and the whole is then fitted inside the original shaft, but in such a manner as to be moveable at will. All cold currents are prevented from entering downwards, as they immediately close the leather valves, which are very light and sensitive.

One great objection to shafts is, that when the stables have been empty some time they become cold, and refuse to convey warm air after the animal's return. To obviate this great drawback, the gas-lights should be placed beneath each shaft, the heat from which raises the tube and contained air to a higher temperature, and thus conveys away the foul air. This may be only required for the space of ten minutes, or while the attendants are doing up their horses, after which the light may be turned down low, or off altogether, and ventilation will be found to go on very well in most instances.

Where gas-lights are not to be had, the oil or paraffin lamps, &c. should be suspended beneath, which will be found to answer nearly the same purpose.

Heat or Temperature of the *Stable.*—This is of great importance to the horse proprietor. Heated stables usually indicate deficient ventilation, but the two must not be confounded.

Stable temperature, it has been stated by different writers, should not exceed 50° or 60° of Fahrenheit's thermometer.* This is purely a mistake: for how can it be, when the same instrument registers 70° in the shade, that a stable may

* This principle was extensively taught some time ago, and advocated by the writer on the authority of a teacher from whom it was received. He has now, however, grave reasons for questioning its accuracy.

be kept ten degrees lower, without incurring great currents sufficient to turn a windmill?

Temperature of the atmosphere inside a building will, under ordinary circumstances, be regulated by the temperature of that on the outer; and the principle involved is to preserve as much as possible an equal condition, by increasing the discharge of air rarified by respiration, &c. But in this there may be some difficulty, as under all circumstances in summer, when the heat is great and air still, that which replaces the discharged portions received from the outside must be quite as hot. To state that a stable is always to be kept at 50° or 60° is simply absurd. Such may answer very well for winter, but cannot be maintained in summer.

The temperature of a stable will materially affect all new comers. Horses that have been out at grass, should never be brought into stables where others are confined. The only safe practice is to put them first into a shed or hovel, and gradually introduce them to work and the stable at the same time. It has been truly observed, that under neglect of these precautions the animal is likely to suffer far more than by being exposed to the contrary changes.

In all cases regulate the temperature of the stable by allowing foul air to escape effectually, without establishing currents over the animals. In summer the temperature may be considerably elevated above 60°, but nevertheless the atmo-

sphere may be rendered quite as pure as can be expected, and to reduce that temperature would be impossible.

The object of maintaining a cool state of the temperature in buildings is to promote healthy respiration, purification of the blood, and ventilation.

Grooming or Dressing.—I must refer my readers to page 104 of the treatise on "The Horse," already named, for certain facts in connexion with this subject.

With regard to implements for the purpose but little need be said. They are well known to most persons. It is to their *proper* use that our remarks will apply in greatest force.

The *curry-comb* is intended for use when the coat is *clapped* to the skin and glued, as it were, by the products of perspiration. It may be used also to the dirty legs of cart-horses when dry, or to the bodies when the old coat is to be gradually removed. But grooms should be warned against using it with too much roughness, as the animal is irritated, and temper not uncommonly spoiled, while injuries are sometimes inflicted.

The *main use of the curry-comb is to clean the brush;* which, used by the right or left hand, according to circumstances, is to be plied with vigour.

The *body brush* is oval in outline and provided with a strap across the middle, through which the working hand is put. A great fault in many

of these brushes consists in the bristles being too weak and too close. They thus fail to reach the skin.

The dandy, or *whalebone brush,* is a most useful agent in removing loose and rough dirt from the body and legs, mane and tail, and should deservedly find a place in more stables than it does.

The *wisp* is made of straw and also soft hay—the former is to be used for rough purposes, while the later is damped and used at a later stage.

The *rubber* consists of linen or flannel, usually the former, made up like a towel, having a loop that it may be hung up when done with. Many grooms use also two chamois skins, or wash leathers—the one for wet, the other for dry purposes.

The *mane comb* should not, in my opinion, be used to the same extent as is frequently done. The dandy brush will perform the major part of the work of the mane comb, and the hair of tail and mane suffer much less. In fact, there are stables where owners do not permit the use of a comb, and the appearance of those graceful appendages to the horse may defy all comparison.

The constant use of a comb reduces the hair too much, and proves profitable at the time when the "rag man" or "general pick up" comes round, hence its common use. If the mane or tail becomes too luxuriant under the use only of

a brush, it can be thinned in a legitimate manner; but this is not frequently required.

Foot pickers are required to remove imprisoned stones or other objects from the feet after journeys, and *water brushes* for washing them.

After this enumeration of stable tools, and the groom is provided with a requisite number, the rest depends upon himself. The appearance of a horse always reflects the character of the groom; no better test need be resorted to.

A certain gentleman, well known for his superior stable management, when asked by the writer how many grooms he kept, replied, "Three helpers and one groom; that groom is myself. I look on and *have* the things done in proper order. That is the reason you are able to admire the clean and tidy state of the place and animals."

On another occasion a smart young fellow stepped up, gave the usual salutation, and said, "I hear, captain, you require a young man in your stable, I have come after the place," and went on to say a great deal about last place, character, &c. The captain having heard him out, said, "Well, my man, I do not doubt one word of what you have said; but let me see the horses you have been looking after, and I will at once inform you whether I can take you or not."

Good grooming removes dirt and the products of perspiration from the skin, which if allowed to remain obstructs natural and healthy functions

and endangers health. The proof that horses are well groomed, is shown by the clean, shining skin and absence of dirt on the finger when it is passed over the hair. The operation not only removes dirt, but causes a quickened circulation of blood in the skin. This helps to remove by perspiration useless parts from the body, and gives further nutrition to the skin and hair, hence the improved appearance, better health, and consumption of a less amount of food than in other horses.

Dressing is usually carried on in successive stages.

First, the curry-comb is carefully used to all parts when the hair is matted and glued down, *the direction being in that of the hair itself.*

Second, usually the straw wisp or dandy brush to the whole of the body.*

Third, the body brush in one hand and the curry-comb held in the opposite, to remove dirt from the bristles. The brush also goes over the whole of the animal in a thorough manner.

Fourth, the damp hay-wisp also, applied with a will.

Fifth, the dandy brush to mane and tail, and

Lastly, the rubber, to use the whole of which occupies fully one hour.

The operation of dressing horses should always be set about as soon as possible after entering

* In hunting stables, this is the *first* operation. The curry-comb is not used to the skin.

the stable in the morning, excepting of course while horses are eating their provender and when required to go out to exercise.

A good daily grooming is absolutely necessary independent of that which is required after coming from work. Those animals which have not been out of the stable since exercise need only their clothing removed, dressed with the cloth rubber, and reclothed.

The operation should if possible be always conducted in an outhouse or shed for the purpose. Grooming in stables is prejudicial, and should be avoided on the score of health.

Washing the Legs.—The use of water in washing horses' legs is often very much abused. Without care nothing produces more inconvenience.

In many places the blessings of pure water have been extolled and received as a cure almost for everything, and, acting upon the belief, the converts imagine that they "cannot have too much of a good thing." Results are, however, against the supposition. The evil consequences are, cracked heels, swelled legs, grease, &c., all of which may be avoided in ninety-five cases out of a hundred.

In many stables visited by the writer, the horses when returning from work, cold, tired, and hungry, are compelled to stand some minutes while each leg, almost to the middle of the body in very dirty weather, is drenched with water from

a hose. From this cause a man is almost constantly kept to dress the legs, which are unusually affected. In one establishment, from out of nearly one hundred and twenty horses, one-third had to be thrown off work in consequence of internal disease arising. Carriage horses and hacks suffer much from cracked heels, while their breed defends them frequently from grease. All this comes from the treatment to which they are subjected afterwards.

To the mere washing of horses' legs, if conducted properly, none can offer objection. In wet dirty weather, when the hair is matted with mud, no animal can rest comfortably with such an accumulation about them. If allowed to remain, the sand and grit is moved during exercise to the wrinkles of the skin about the joints and the parts are chafed, soon becoming raw, and presenting obstinate sores. By all means let the filth be removed as quickly as possible, using in summer cold, and in winter warm water. A good brush with a *small* quantity of soap will also be required.

Next press out the superfluous water and briskly rub with coarse towels kept for the purpose, and put *loosely* a bandage upon each leg as high as the parts that have been washed, which should scarcely ever be above the knees or hocks. This process will very certainly limit the number of cases of cracked heels, grease, &c., all of which occur from the amount of cooling to which these

parts are exposed when wet. If any person wishes to test the truth of this statement, let him go out of doors with his head and hair fresh from beneath a stream of water. The experiment may be repeated from day to day, but like the horse's it will be found he will never become so *hard* as to be able to defy the consequences.

We frequently hear in stables the directions given to "be sure and rub the legs dry." Whoever gives such instructions, cannot be aware of the impossibility almost which they require, unless men and horses are entirely deprived of rest. The easiest and most economical method is decidedly the use of flannel or linen bandages. For cart-horses a coarse kind of material is obtained, low in price and exceedingly strong, commonly used to make wrappers for linen goods, called "pack sheet."

Bandages are usually required about four yards long and three to five inches wide. At one end the corners are turned in and stitched down, and upon the narrow part is also stitched a piece of tape doubled, so as to allow the use of the free ends for tying.

The usual plan is to take a piece of flannel or other material of the requisite length, and tear it up into ribbons of the proper width. For large cart-horses they will be required at least five yards long and five or six inches wide. By their use the legs dry rapidly through the means of *natural heat,* and in this way the groom will

generally be enabled to remove them, and rub down the legs before leaving for the night.

Clothing.—The object of clothing horses is to compensate for the loss of temperature from the body which naturally takes place in cold weather. For this purpose woollen rugs are employed, which are kept on the body by means of a roller. Hoods and breast clothes are also used with additional clothing as the weather demands, but in this sometimes error occurs. Too much clothing renders the animal sensitive, by keeping up great action in the skin, while health is prejudiced thereby. In most instances, proper exercise, pure air, and *moderate* clothing will be found most conducive to health.

Bedding.—The material used for bedding horses varies according to the locality. That most generally used is the straw of wheat, selected principally on account of its brittleness, which prevents the animal getting his feet entangled and injury occurring.

Oat straw is usually considered objectionable on account of its toughness. Barley straw is too dusty, and causes great irritation of the skin.

In wheat straw there is an advantage in the fact that beds made of it are cleanly and comfortable, but on the other hand, it is expensive in towns. For this reason tan and sawdust are used extensively in some establishments.

In farm stables ferns and dried leaves of various kinds, when obtained in abundance, are employed.

Pea and bean straw is also used, and flags from the rivers are mown and dried for the purpose.

The service and economy in each of these substances vary in accordance with the condition in which they are used, as well as supply. That none, however, are equal to a straw bed few will deny. When, however, the manufacture of manure is estimated, some of these articles may be more profitable.

In some districts farmers are prevented by their covenant from selling straw from their farms, and this causes the small quantity which finds its way there to fetch still higher prices. Under such conditions some agriculturists have no objection to allow straw for manure in return, with the payment of a small sum annually, to defray the cost of transit.

It is important to allow horses good beds. They are prevented from doing damage to their limbs or skin, and besides, rest much better, and thus is preserved greatly their usefulness.

Disposal of Manure.—As already referred to, stable manure is greatly deprived of its obnoxious qualities if it is treated before removal with that useful agent, M'Dougall's disinfecting powder. This remark applies with no less force to manure after removal to the tank or proper receptacle. Its proneness to decomposition is very largely diminished. The compounds which give rise to the formation of fœtid and hurtful gases are at once seized, locked up—companionized with other

agents in the powder—and the whole remains almost a passive heap.

This is profitable in more ways than one. While the stable atmosphere is rendered pure by the use of such an agent, the air on the outside of the building is prevented from receiving contaminations it would otherwise gain from decomposing manure.

The farmer also who gets it after being so treated, receives much benefit in the greater amount of serviceable matter which is furnished to his crops.

Manure heaps should be removed as far as possible from buildings, as the putrefaction which usually goes on, resulting in hurtful emanations or disagreeable smells, contaminates the air of all places where animal life exists, and renders it unfit to support it for any length of time in a healthy manner.

When tanks or places for manure are made, care is to be observed that they are not located near wells from which water is drawn for drinking. If space will not admit of this being carried out, the receptacle should be lined with bricks and cement, to prevent the fluid portions from percolating the soil, running along drains, and then finding their way to drinking water.

Clipping and Singeing.—These are to be viewed as necessary evils attendant upon the keeping of horses. There are arguments to be adduced, strong in their tendency towards truth, and bid

fair to destroy the validity of the grounds on which the practices are based. There are, however, others which are equally strong in their justification and continuance.

Both these operations bring about the same result—viz., reducing the length of the coat or hairs over the whole body.

Clipping is performed by scissors and a comb, and recently by a newly-invented machine which bids fair to answer well the purpose.

Singeing consists of burning off the hair by means of a lamp charged with naphtha, spirits of wine, or, what is better, coal gas.

The merits of each operation are considered to be widely different. While by the use of the new clipping machine a horse can be deprived of his coat in a most incredibly short space of time, simple division of the hair is thought to favour exudation or evaporation of the fluid nutritive portions which occupy the interior. The advocates of singeing claim an advantage by their process in which the end of each hair tube is *sealed* up by the insoluble portion left upon the end.

Both these opinions are worthy of being remembered; but nevertheless it may be safely argued the disadvantages resulting from the operation of clipping are certainly not covered by that of singeing.

It must be evident to all who give consideration to the subject, that singeing has much greater

disadvantages than even clipping under the more protracted mode by scissors and comb. We need only mention that the flame alone is sufficient to render many horses very tedious and troublesome. Some will not permit it to approach them, while others stand trembling, and a sudden fit of perspiration at once proclaims this impossible.

In singeing also, the skin is not unfrequently burned, eyes are damaged, mane and tail disfigured. And lastly, it is a dirty and tedious operation. It answers well for taking off the thin hairs which continually shoot up during the winter; but for effectually and expeditiously removing the coat, the machine, when in proper order and efficiently worked, is decidedly to be preferred.

The policy of removing the coat of horses in winter has, as already stated, been vehemently called in question. While great respect is entertained for the opinions and the writer who sent them forth to the world, we cannot admit the constant baneful effects which are said to be attached to the practice.

Lengthened experience has taught that our horses are kept in an artificial condition, and the thick rough coat endowed by nature each winter unfits them for that condition. This we gather from the fact that in all cases of cab, hack, omnibus, and job horses, also hunters, and even some cart-horses with thick long coats, where they are worked during the murky November

month, without being clipped, coughs and colds are most common. Frequently serious disease befals these animals, but if they recover sufficiently to be able to have the coat removed, nothing can be more remarkable for their good. We have seen a horse, owned by a gentleman who held these operations in aversion, after being brought off a journey in a lather, stand with the wet coat, literally starving through the night, and his evening meal untouched next morning in consequence. To stand shivering in the stable is usually considered indicative of the first stage of disease; in fact, there is but a hair's breadth between them; and we must confess it is not plain that a cold wet coat, always inevitable upon work at these seasons, which by scarcely all the rubbing a man can bestow will not dry, can be a greater luxury than a *dry* and *short* one suitable to an artificial condition supplemented by a thick warm woollen rug.

No doubt a horse soon takes cold when his coat is off and he is placed in adverse conditions. Nevertheless, a thick wet coat must be equally productive of colds, obstructed perspiration, and far more mortality; therefore it has very wisely become the practice to remove the coat of working horses.

FEEDING.

This is one of the most comprehensive subjects connected with the keeping and management of horses.

Before going into details, we must again refer the reader to the volume on "The Horse, how to feed him," &c., for the intricacies to be understood. The dogmatism to which a writer on popular subjects is compelled to descend, forbids the indulgence of going into cause and effect. The little work therefore will prove a serviceable guide to those desirous of pursuing the theory of that which we now take up in description.

The provender used for horses consists of oats, beans, peas, barley, lentils, or tares, hay, straw, and bran. Besides, fashion, and a view to economy, has led the way towards introducing additional substances, as Indian corn or maize, the locust or Carob bean, linseed oil-cake, condiments or spicy foods, and with the season, grass, clover, rye-grass, tares, potatoes, turnips, and carrots, usually called *vegetable food.*

Oats form the principal article of diet for horses in almost all parts. Of these there are many varieties, the most economical being probably the potato and Scotch white oat. In contradistinction to these, the most common are the English black and the white Tartary oats;

but in all respects they are an inferior article of food. While the potato and Scotch oats are short, plump, heavy in the hand, possessing thin husks, weighing from 40 to 46 pounds per bushel, and possessing a high percentage of nutritious matter, the black and Tartary oats are long, light, and slender, their husks are thick and bearded (or tailed), the proportion of meal, and consequently the nutrition, is much less, they seldom weigh more than 36 pounds to the bushel, and prove very inadequate for working horses.

Good oats yield about 14 per cent. of nutrition. They are as a rule very digestible, and when clean, dry, sweet and sound, answer very well for all horses doing light work.

The proportion required for different animals varies in accordance with the work; but size of animal also calls for modification in the daily allowance. Horses from 15 to 16 hands in light work or exercise only, will do very well upon 8 or 10 pounds per day, which may be increased to 12 pounds under greater work. Cart-horses will require 12 to 16 or 18 pounds, and wagon-horses of large build as much as 20 to 25 pounds.

A small quantity of cut straw, or hay and bran, is advantageously given with the oats in the manger or nose-bag. Mastication is much more perfect and digestion facilitated thereby. This equally applies to all kinds of corn.

It is not necessary always to bruise oats. If

the horse is endowed with his proper masticatory powers, no human invention or appliance will supersede them. It is more natural for the horse to masticate his food than to receive it in a partially cooked or digested state.

Among *beans,* the Lincolnshire tic is the favourite for feeding horses. This variety is small, having a thin bright husk and a highly nutritious kernel, weighing heavy in the hand, and proves a very profitable feed during excessive work.

The nutritious matter of beans amounts to as much as 31 per cent., and they are very advantageously mixed with oats and chaff to the extent of one-quarter or one-half by weight of the former. The weight of beans ranges from 60 to 66 pounds per bushel.

As a separate feed they are positively injurious. Under all circumstances they should be combined with other varieties of food, and carefully withheld from idle horses. Their immediate effects are the production of constipation and disorder of the digestive organs, the end of which is frequently fatal.

In the animal body, when properly administered, beans form a very useful agent in the manufacture of flesh (muscle), hence their superiority in producing a great amount of hardihood. The weight of the body is greatly increased by their use in proper form and qualities, and the general health steadily maintained under greatest vicissitudes.

Peas contain even more nutrition than beans, which they greatly resemble in general properties. They are, however, less liable to produce disorder of the digestive organs, being much more digestible. White or Canadian peas are usually preferred, which weigh from 60 to 66 pounds per bushel in a dry state, when they prove a very substantial and economical feed given as directed for beans. The maple or brown pea is also very good feeding.

Barley usually weighs when good about 56 pounds per bushel, contains 10 per cent. of nutrition, and 68 of fatty matter. It forms a most useful agent with other kinds of food, is highly digestible, and promotes their digestibility and assimilation. For sick and convalescent animals, a small quantity of barley which has been boiled sufficiently to swell and burst each grain, and deprived of its water, proves acceptable when the digestive powers are weakened and prostrate.

Tares or *Lentils* are not so commonly used as the preceding. Their principal use appears to be for producing a summer green crop, and horse feeders with few exceptions know little of them in other respects. They weigh from 65 to 70 pounds per bushel, contain as much as 33 per cent. of nutrition, are very digestible, and prove admirable agents for increasing the amount of muscle-producing principle of a mixture of corn.

They are, however, unpalatable, being bitter; and on this account are not relished when given

alone. To use them with advantage oats, peas, barley, bran, and chaff should be given with them, which forms a most nutritious and easily assimilable mass for hard-working animals.

Hay and *straw* with bran, are articles used entirely for the purpose of giving bulk to the forms of food which occur in grain, &c., and also on account of their mechanical action on the coats of the digestive organs. By their use the food is more perfectly masticated and digested, and healthy action maintained with greater persistence and regularity.

Hay very frequently proves no better or more economical than oat straw; much depends upon the mode in which it is gathered. If allowed to stand until the seeds are ripe, greater part is shed upon the ground; and as they then contain all the nutrition, that which remains is not worth the money usually paid for it. Nutrition exists in good upland hay to the extent of 12 or 13 per cent., but in other varieties not more than 6 or 8 per cent. is to be found.

The quantity allowed to each horse is from 12 to 24 pounds. Greater economy is to be maintained by cutting up the hay and mixing with it one-fourth or one-half cut oat straw. When given in the long or uncut state, much waste occurs by the animal drawing it beneath the feet and trampling upon it. In the cut state it is very closely consumed.

Straw forms an indispensable article of diet,

particularly among cart-horses and those used in cabs, omnibuses, &c. Oat straw is always to be preferred, which in times when hay is very dear or scarce, may very properly take its place. It is possessed of nutrition to the extent of 6 per cent., but this principle is not looked at primarily. Straw should always be given cut into chaff. The practice of giving unthrashed straw to working horses is a most uncertain method, and greatly prejudicial to their working qualities. The quantity of grain they receive is doubtful, and no method can be more destructive to the owner's interest when work is required. In farm stables a great amount of inconvenience takes place from the practice; it forms one of the causes of disease in the category, which is a lengthened one.

Bran contains as much nutrition as barley. It is, however, very indigestible, and in consequence furnishes none of its beneficial ingredients to the system. Bran finds favour as a laxative. For this purpose it is given with other kinds of food in order to correct any tendency towards constipation or accumulation within the intestines. Bran contains much siliceous or sandy matter, and to this is due the mechanical irritation which proves so very useful when given with the food daily. The quantity used is from 10 to 14 pounds per week.

Among horses doing heavy work and receiving a great quantity of hard corn, bran is a most useful article, being given as a mash once a week—

viz., Saturday evening. For this purpose two or three pounds of bran are saturated with boiling water, scarcely *half a feed* of oats is also added, together with a little linseed prepared according to details which follow. The whole is then allowed to cool, and when at the temperature of new milk given to the animal. In many well regulated town stables this forms a constant practice.

In some places the laxative qualities of bran are believed to be useful in removing calculi or stones from the intestines, and on this account it is used very extensively. Having specially investigated this subject, we do not think it improbable that the bran itself has much to do with their formation. Where it is so largely used, containing a quantity of dust also from the floor of the mill, these effects are common.

During a recent conversation in London with Mr. William Ernes, M.R.C.V.S., Dockhead, Bermondsey, that gentleman stated a miller of his acquaintance once fed largely upon bran. The result was constant colic and irritation from calculi. He was advised by Mr. Ernes to discontinue the bran, or give a pure variety free from dust, &c.; the consequence was that since the time, now some years ago, there have been no further cases. Buyers of bran should insist upon it being free from sweepings from the floor, &c. Bran mashes are used for animals suffering under acute fever to replace corn, which would aggravate the complaint. They produce a softened state

of the excrement, and thus relieve high vascular action. Prior to the administration of *Physic* they are also judiciously administered, whereby much pain and irritation as well as loss of time is avoided—a less powerful dose being required.

Bran mashes are *not* nutritive, and therefore should not be given too frequently to animals labouring under weakening ailments. In such cases they prove positively injurious, by prolonging the disease and prostrating the powers of the animal body. . After their use mangers should be well washed out with a brush and hot water having soda dissolved in it, to remove the sour smell left by the fermenting portions; otherwise any food which is given afterwards will be refused by the animal and occasion waste.

Linseed contains about 24 per cent. of nutritious matter, with upwards of 60 per cent. of fatty or heat-producing material. It is never used alone as an article of diet, but proves eminently serviceable given in a state of solution with other food.

Linseed is laxative and nourishing. While its daily administration promotes a regular state of the digestive organs, it also proves highly assimilative, and hastens the assimilation of other articles of food. Horses which receive linseed usually look fresh and bright in the skin, in consequence of the special influence it has upon the bloodvessels and secreting organs of that part.

Horse-dealers and grooms who desire to put on a fine coat rapidly, and improve the general condition of animals coming up from the pasture in a lean and poor state, are well aware of this property, and therefore use linseed. The laxative qualities are due to the presence of an oil, known as "linseed oil," obtained by expression from the seeds. As a constantly soft condition of the dung of horses is not a natural, but very prejudicial state, care must be exercised in order not to use linseed too much. By some the oil itself is used, one or two tablespoonfuls being mixed each night with the bran, chaff, and corn. Horses soon take to it, and improve visibly under its influence, but the reader must be informed that strength is not produced directly by its use; on the other hand, *fat* is laid down, and this gives the altered appearance. Indirectly, when *good food* is used at the same time, the digestion and appropriation of the nutritive portions are carried on with greater vigour, and thus the muscular system is regenerated from time to time. The form in which linseed is given to horses is that of solution, or as *tea*. It is sometimes termed "cree'd linseed." In some districts it is placed in water and boiled until the capsule of each seed bursts from imbibition, and the whole becomes a thick mucilaginous fluid. All the trouble, however, may be saved, as linseed will assume this form quite as well and as rapidly in cold water as by boiling.

The proportions are about a pound of linseed

to one gallon of water. The whole is placed in a glazed earthenware vessel, covered over and allowed to stand until ready, about twelve hours being sufficient, during which it may be stirred once or twice. Half a pint of this is given to each horse with the evening feed.

Two vessels having covers should be used. When one is charged the other is to be well steeped and cleansed and again charged, in order to come into use at the proper time. The quantity made should not last over two or three days, as there is a great tendency towards fermentation, by which the whole becomes very offensive, and consequently useless.

Among horses receiving a great quantity of hard, dry corn each day, linseed thus treated will be found very beneficial, and promote health.

Linseed or *oil-cake,* is somewhat richer in flesh-forming constituents than linseed, but does not prove serviceable as a regular article of diet for horses. The objects of its use may be clearly defined to be for the purpose of assisting, like linseed, in the assimilation of other kinds of food, the production of fat, and, when broken into small pieces, is given to young horses for the purpose of hastening their growth and development.

Many animals refuse it altogether; but when they do not, the quantity allowed should never exceed a pound per day, as it then takes the place of more serviceable materials and adds con-

siderably to the weekly cost, without affording proper return for the outlay.

Sheep and cattle partake of it readily; but farmers make a great mistake frequently in not using it with other kinds of nutritive food at a much earlier period, by which many diseases incidental to their stock would be avoided.

Maize or Indian corn has not proved very useful as an article of diet for horses. On the contrary, great derangement and disease have been produced in many stables, principally from the presence of a great quantity of water, as well as having irritative properties.

Maize contains 11 or 12 per cent. only of nutrition, and forms a very suitable article of diet with many others for pigs, cows, oxen, sheep, &c. When used for horses the quantity should be small, mixed with an abundance of beans, peas, or lentils, to reduce their stimulative and other properties, and *always rejected if not dry and good.*

The *locust* or *carob bean,* imported from the East, forms one of the principal ingredients of condimental foods. As an article of diet it is *not* rich in nutritious or flesh-forming constituents, from 7 to 9 per cent. only being present. The chief ingredients are mucilage and sugar, upon which its fattening properties depend. Nor does it prove digestible. Like beans, peas, Indian corn, and lentils, all of which are enclosed in a strong shell which greatly resists the action of the

fluids of digestion—they should *always* be *split*, that the internal portion or kernel may be acted upon, and never given alone or in large quantities. They are apt to accumulate in the intestines, where they set up disorder and remain almost unacted upon for a considerable time, until severe and intractable diarrhœa comes on, and from which death may result.

A large firm not long ago, desirous of saving money, began the wrong way, by purchasing locust beans and lentils mixed with all kinds of unknown rubbish. These were given indiscriminately to all the animals while doing the hardest work. The digestive organs failed to extract the nutritious portions, disorder fell among them, and several, after only 24 hours' illness, died, indicating all the signs of a blood poison. In former times, when little or no attention was paid to the feeding of horses, such an occurrence would have been looked upon as an epidemic, and met by bleeding and physicking the whole of the healthy animals, by which the mortality would doubtless be increased. In this case the sagacity of the gentleman who was consulted immediately caused a detection of the error, and thus put a stop to the destructive disorder.

Condiments.—Many of these compounds, all said to possess wonderful properties, are at present appearing in the market. Their principal composition appears to be oil-cake, ground locust beans, fenugreek, sulphur, common salt, &c.

Consumers of condiments are not usually aware that when they pay the high price charged for them a considerable portion goes to provide the attractive bills and woodcuts which are so extensively circulated, and also that the compound does not possess the nutritive qualities which half the money would procure in the shape of sound dry corn. They are also not aware that when animals improve their condition by the use of condiments, the change is brought about by the consumption of an increased quantity of food. Nutrition is demanded to support life. It is not contained in condiments to the extent required, and as it *must* be obtained in order to keep up life, *the only source is ordinary food.* If any one doubts the truth of this remark, let him take any one of these batches of condimental nonsense and keep a working animal upon nothing else, excepting hay or straw chaff, and he will soon have to pay for the result.

Condiments being usually sold as secret compounds, appear to inspire purchasers with a great amount of veneration. A fine wrapper and flaming placards exhibiting a monstrous animal rendered ugly and almost unrecognisable, work wonders among the unthinking portion of the community, who usually pay double for the lights so commonly dazzled before them.

The time, however, is fast approaching when the son of the agriculturist will combine philosophical studies with the consideration of the

practical details of the farm. He will be conversant with practical as well as physiological chemistry. The profits of husbandry will be derived from the proper application of science, and in his own hands will be held the key to his success.

Vegetable food consists of two kinds. One, supplied in summer, is called the green crop, and consists of varieties of grass, as well as tares or vetches, sometimes called also lints, and clover. The other kind of vegetable food consists of roots or tubers, and comprises carrots, turnips, and potatoes.

Great mischief occurs among all working horses by the indiscriminate use of vegetable food. Containing much water they cause the animals to perspire very freely, they also urinate profusely, the food is hurried through the body, and being weakened thereby, they are liable to take cold easily. They are thrown out of condition, which hard corn and proper exercise only make, and the profits and peace of mind of the owner often considerably endangered thereby.

Roots should always be given very sparingly, every bit of dirt carefully washed off; and in the case of turnips and potatoes the peel or rind pared away, as this portion proves very indigestible.

Mangold-wurtzel and *Kohl Rabi* are also used occasionally, but our previous remarks apply to them also. Among sick animals, particularly

when suffering from low debilitating diseases, as influenza, strangles, &c., and during convalescence, the roots prove very useful. They are cooling and laxative, and furnish to the blood those materials which disease has taken from that fluid, but they require to be given in small quantities and at regular intervals.

Grass, clover, and vetches produce greater harm than many suppose. During their use in summer violent colic, sore throats, coughs, colds, influenza, laminitis, swelled legs, &c. &c., occur most commonly among our cab, omnibus, and cart-horses. When animals are in good condition, healthy, and doing their work well, it is a great mistake to change the diet to green food. In most instances the voracity of the animal's appetite causes it to replace natural corn, and the whole of that which months have been required to produce, is spoiled and sacrificed in two or three days.

If horses are unfit for work by reason of lameness, or operations and other causes, &c., which call for rest in the summer season, the most economical method of keeping them is to allow grass or clover, &c., with oats under certain circumstances. To expect them to work upon such food is to look for an impossibility, and is entirely foreign to the horse in an artificial condition. Green food and roots contain in every hundred parts from 70 to 90 parts of water, and little over 5 per cent. of nutrition. During their consump-

tion therefore, animals cannot be expected to gain much support, and it will be seen at once why we claim for the horse *entire rest* while subsisting upon them.

Turning to grass.—The more we become acquainted with the nature, habits, and requirements of the horse, the less favourable does the practice of turning to grass become. In addition to the inconveniences already enumerated as arising from the adoption of green food, there are others which prove more embarrassing and destructive to profits. The changes of temperature, that of the outer air being much cooler than the air of the stable, are sufficient after sudden exposure to work great and mischievous results. In addition to the comparatively innutritious nature of grass, as set against dry food, the animal is less able to withstand the cold air of nights, of rains, and winds. He therefore suffers more or less, and not uncommonly comes up a "rank roarer." If greater fortune has been upon his side, the bulky nature of the food may probably let him off with "broken wind." Besides, he has accidents to encounter from mischievous boys, a malicious companion, or a furious bull, an opposing fence or hidden ditch. At one time he stands shivering with his tail to the wind and pelting rain, or is exposed to the rays of a scorching sun, tormented and harassed by stinging flies, from which he finds no escape till nightfall. When he should be quietly lying down to rest, and to allow

of proper digestion going on, he has not filled his stomach, and is therefore compelled by the pangs of hunger to roam about in order to obtain his food.

Besides doing damage to the pasture and to his hoofs, which a hundred sheep or cattle would scarcely effect, he has sustained irreparable blemishes from which his value is considerably diminished. Taking these and many other results into consideration, it naturally occurs that there is seldom any gain in giving a horse a run at grass after being worked for months on hard corn and accustomed to the heated atmosphere of the stable, to which in a measure he is now acclimatized. When he deserves or requires cessation from work, *rest,* absolute rest, is the object sought. It may be the lungs require exemption from accelerated respiration in consequence of their tone and powers being deficient by reason of disease. The legs also demand that they be relieved of strain and all possible pressure in consequence of tendons suffering from laceration, joints from acute pain and inflammation, and muscles from damage done to their substance from various causes.

Such being the case, and probably in addition the system suffering from the effects of weakening medicines, blisters, and even the firing iron, one cannot but pause on the folly and injustice inflicted when we turn out that most useful animal and subject him to the very opposite treat-

ment which his case and value demands. If the reader should possess an old animal whose services are no longer required, and upon their account or pleasurable associations it is desirable that he should be allowed to spend his days in freedom, after the usual preparation there can be no direct harm in his doing so. In a short time he will become as comfortable and satisfied with the cool air of heaven as he previously was with that of the stable. Nature will soon provide a coat suitable for all weathers, and in his paddock, with only a bare shed, visit him when you will, he comes with a freshness and grace which contrasts strangely with the states we have been considering. He has taken a fresh lease of life, and appears all youth and buoyancy. The poor stiff and decrepit favourite now gambols like a foal, and has thrown aside the accumulations of age, and in such a condition, which resembles the natural one most closely, he may live for years.

With the working horse matters are different. The changes are too severe upon his constitution. He no sooner has become inured to the change of climate and other vicissitudes, than he is called upon to make another sacrifice of his constitution, and subject himself again to the oppressive atmosphere of his town stable.

In all fairness such an animal should not be turned loose upon pasture land. A large loose box and yard is best, in which for the sake of his health, present and future, his feet and legs, lungs

and digestive organs, he can exercise himself proportionately with the food he gets, rest and be thankful, preserved from cold winds, rain, or the burning sun. Here his green food is to be brought along with water and a feed of corn in most instances, and with a *dry bed* beneath him, a few weeks may be spent. He thus requires less time to be got again into condition, maintains it better afterwards, and gives greater satisfaction in the end.

With some proprietors, turning a horse to grass is tantamount to avoiding expense under a false belief in the efficacy of the plan. Horses that are lame or ill and recovering slowly, are usually trotted off, along with others not required for a week or two, to the pasture. Such men can have no idea what harm they bring upon themselves; they can have no idea what condition is, and the cost required to establish it in the horse's body, or they would not so lightly sacrifice it. Under such treatment we no longer feel surprised at the cases of swelled legs, grease, cracked heels, canker, inflammation of the lungs, pleurisy, fatal colic, surfeit, &c., which crowd the stables with victims under some kinds of management. Our experience too plainly shows the truth of all this, and we feel we should be unfaithful to our trust if silence was maintained upon the point. It is mistaken economy. Such management—it scarcely deserves the name—is always productive of more loss and inconvenience than profit, as is demon-

strable too frequently in very plain and unmistakeable ways.

Regularity in Feeding.—In all horse establishments the system of feeding, to be successful, should be regulated by definite rules having special reference to the kind and quantity of work to be performed.

The hours also of feeding should be strictly adhered to. The latter is highly necessary on account of the small size of the horse's stomach and rapidity of digestion. Upon this account horses should not as a rule be fed fewer than four times a day. With hunters and other horses when out during unexpected times, this cannot always be accomplished; but with town, farm, cab, and omnibus horses, it may be greatly overcome by the use of the nose-bag.

When work is light and calls for little exertion of muscular power, horses may be fed economically upon oats, with Indian corn, chaff, and bran. Every 12 pounds of oats being mixed with 4 pounds of maize, 2 pounds of bran, and 14 or 16 pounds of hay, or hay and straw chaff. These quantities, which are allowed each day, will do for a horse of 15 or 16 hands, but larger horses will require a few pounds more.

When work begins to be excessive, it must be the care of horse-keepers and those in charge to furnish a food containing greater nutrition. For this purpose, beans, peas, and lentils may be taken, and mixed with barley in different propor-

tions, *all being bruised separately*. Chaff and bran also will be required to give bulk to the whole.

If prices of grain fluctuate much or rise considerably, by substituting the more nutritious kinds of corn, horses may be fed for much less money. The details which furnish information on this matter will be found at pages 89 and 93 of "The Horse; how to feed him," to which the reader is referred for full information.

There is scarcely any department of horse management wherein there exists greater scope for the exercise of economy as compared with present modes. Nor is there another where by the exercise of that economy a greater saving is to be made, by not only avoiding useless expenditure but also disorder, disease, and death, which now stalks with ghastly grin and fearful strides through many parts of our land.

There is one other question which is frequently neglected by horse proprietors. This is the *quality* of provender. A short time ago, we were standing in conversation with an extensive owner when a grain merchant stepped up and offered oats, beans, wheat, maize, and lentils for sale. Upon examination these articles were found to be very inferior, mixed with all kinds of dirt, and also soft as they could be. The prices were asked and given, and our opinion was requested. We remarked, "The samples were very inferior, damaged, and very wet, and certainly not fit for

working horses." The owner remarked, "But we boil these, and their being wet and damaged kinds can make no difference, as boiling makes them more nutritious."

For the first time then we learned that to cook food rendered it more valuable in its strengthening properties. The operation appears to our mind as an attempt to *smuggle* into the horse's stomach such a mixture of rubbish that he would not swallow in any other condition. It is a cloak for the purpose of buying inferior corn, and in it may be looked for *all* the causes of the mischief which is known among horses to which such trash is given.

Without good food, no horse can maintain an aptitude for work. If he is deprived of it and inferior kinds are substituted, the body suffers, his organic functions give way, and he becomes a sufferer from disease. There is more damage done to studs from this cause alone than from any other, and what is most surprising, owners are not slow to believe in this "penny wise and pound foolish" system.

To arrange diet for horses is not a difficult matter, nor is it a thing impossible. Hunters and race horses execute a laborious kind of work, which differs from that of the cart, cab, or omnibus horse but very little. All require the same amount of stamina in order to execute their work.

None grudge the former their share of the very best, but for the poor hard-working dray horse,

with his equally unfortunate companions in exile, the cab and cart-horse, anything will, it is thought, do for them. Nothing is more false than such an argument. As we grow older, however, and with repeated opportunities, the absurdity of the system may be shown up, and thus gradually compelled to disappear from its strongholds.

Feeding after work, when the exertion has been very severe and prolonged, is a matter requiring great care. Among hunters and racehorses nothing can be more marked than the attention paid to them when they return to the stable.

It must be apparent to all who give the subject any consideration, that after a severe run with hounds, sharp race, or the drawing of heavy loads, much wear and tear of the whole system takes place. It is not merely the muscles which move the limbs, but the muscles also which regulate circulation of the blood and digestion of the food. In a word, all are *tired* and need *rest*. When the hunter or racer arrives at his stable, so well are those in charge aware practically of this fact, that they avoid torturing the stomach by causing it to perform unnecessary labour. The mouth is washed out, the face, nostrils, and eyes carefully sponged with cold water, which refreshes the creature almost beyond estimate, and when that is done he receives a quantity of *warm oatmeal gruel* which has been prepared during the afternoon. After taking off the rough dirt, washing the legs, &c., he is left for a time. On

the return of the groom, he is cleaned in right earnest and supplied with corn and hay.

What is the rule in cart-horse and other stables? In many the horse is first allowed to satiate an excessive thirst with cold water at a trough in all seasons, his feet and legs washed very roughly, and half his body wetted at the same time. He next is allowed to go to his stall, and during the time he starves with the washing he is allowed to fill his tired stomach with a large quantity of food, while a man teases him under the pretence of cleaning. Surely these animals, which are directly concerned in the building up of our colossal fortunes, are worthy of a little more consideration. If the labour in which they are daily engaged is not productive of amusement, it is certainly a source of profit without which amusement could not be afforded. We appeal therefore for a little more consideration for our four-footed friend the cart-horse and his allies, who in their spheres are equally as useful as any other animal, certainly an indispensable agent in our social economy.

Instead of cold water supplied in hurtful quantities, let us suggest *hay tea,* or a little tepid water with oat or barley meal thrown in. These would be far more agreeable to a thirsty horse, and refresh and cheer instead of paralysing the stomach. Hay tea is made by pouring boiling water upon a handful of *good* hay placed at the bottom of a pail, and covered with a cloth or sack.

After a time cold water is added to fill the pail, when it is given to the animal at the temperature of new milk.

In place of the heavy food, such as beans, peas, &c., we recommend for a tired horse a few oats or a little barley which has been steeped in hot water for a few hours. This is mixed with a handful of bran, and given on arrival in the stable after the hay tea, or meal and water. The cleaning operations over, and beds put down, the rest of the food may be given and stable closed for the night. By this method the animals are recruited and food proves useful, but in the unnatural systems so often carried out, it causes their destruction in not a few instances.

EXERCISE.

One of the greatest sources of health among horses is to be found in exercise. By that term we understand exertion or use of organs of locomotion, as the legs, &c., and other parts of the body more or less, not strictly called work. Exercise, or the use of the body, is intended to be engaged in at those times when the animal capabilities are not required for work. It is a duty which relieves from the close and monotonous confinement of the stable. Horses kept for a length of time without action suffer in a variety of ways. The circulation of blood is languid, digestion of food retarded, fluids which in health are formed in various organs of the body for the purpose of changing substances and rendering them fit for the system, are not poured out during continued rest with sufficient activity. Muscles become soft and flabby, and such an animal is thoroughly unfit for work or exertion of any kind; he is soon tired and knocked up. The skin looks dull and rough, the bowels are constipated, and he becomes a prey to disease of various kinds.

Exercise must not be confounded with actual work. The two are totally different. What work takes out of the system, exercise is intended to build up and strengthen. Exercise stimulates

all the energies of the body and promotes strength and vigour. It causes all the tissues of the body to receive their support by reason of the tone given to the circulation of the blood, and digestion and appropriation of food. Work, on the other hand, goes farther than this, and lowers the body—causes it to waste or wear out. On this account therefore exercise must be a duty which promotes health by stimulating all the animal functions, but stops short of producing weariness or exhaustion. It renovates the body, and makes it ready to encounter excessive and prolonged exertion, which we call work.

Exercise should be taken regularly. All horses not intended to go to work ought to receive an amount of exercise daily. It is not necessary that the time spent should always be the same, nor is it proper that it be prolonged too far, as it then ceases to be useful and beneficial.

Hunters are usually exercised two hours, and this always immediately after the first morning feed, each animal having been *quartered* and wiped over. The night clothing is to be removed, and exercising rugs substituted.

Usually walking exercise only is taken, and in most instances is found to answer all purposes. If, however, a trot is indulged in, horses should never be hurried, or during a canter put so fast as to "blow" them, nor should the distance gone over amount to more than one-quarter that used for walking.

Many gentlemen prefer to have their animals exercised within call, and for this purpose a long covered ride is arranged. The stables of many noblemen are built in a square, the inner sides of which form a ride, the upper stories being brought over and supported on pillars. In each case sawdust, tan, or short litter is spread, which prevents slipping, and the whole being covered, exercise is taken in all kinds of weather. The arrangement avoids the necessity of going from home, and the chance of meeting with accidents which attend the leading of fresh animals along streets or roads, and actions of grooms in concert when beyond the eye of watchfulness.

Cart-horses, those used for cabs, omnibuses, spring vans, and sometimes even carriage horses, do not receive exercise as frequently as they should. Many of these animals suffer immediately when confined to the stable but even a single day. It is a common thing to find cases of weed or thick leg occurring with unerring regularity on Monday morning, not unfrequently also colic, and even founder or inflammation of the feet. Why should these complaints have special predilection for that day? Simply because Sunday was a day of rest. During the week each of these animals has been working hard, their bodies have been wasting, and the food taken has been appropriated to the repair of that waste. But when Sunday comes, with its cessation from all labour, the food which is taken, being of the same quality and in

similar quantity as during the week, cannot be appropriated. The same waste of system is not going on. The food is not required. It is, however, taken into the stomach, and afterwards goes to the blood, which becomes overcharged with nutritious material, and as there is not time to get rid of it by natural outlets the constant occurrence by unnatural means is inevitable, those means being a diseased state.

Such horses, although coming to the stable tired at the week end, would be certainly *benefited by a walk of three or four miles on Sunday morning.* The time occupied would admit of the stables being thoroughly cleaned, the animals would obtain fresh air instead of breathing noisome odours during the operation, and in many cases ward off the attacks mentioned, particularly if the precautions referred to under "mashes" were carried out, as directed at pages 51 and 53.

When horses come up from grass, straw-yards, or rest on green food, &c., the amount of exercise at commencement should be very limited, and gradually increased until the full amount is taken. Our further remarks in connexion with exercise will lead us to a consideration of what is understood by

CONDITION.

The object of exercise is the preservation and maintenance of that healthy state or general capacity for work which is known in stable technics as condition. To acquire it, good food, pure water, well ventilated buildings, scrupulous care and regularity in all stable routine, and exercise in the *open air*, are indispensable.

Early morning is usually chosen among racing and hunting grooms, in order to avoid the heat of day, rabble of boys, or annoyance from any other quarter. Sometimes the exercise is apportioned, one part to the morning another to the afternoon. This is done frequently in winter when hunting is stopped by hard frosts, the stable yard being well covered with short litter. It also admits of other work being carried out, which would not be done if all the exercise were taken in the morning.

The usual process of getting a horse into condition, consists in the use of certain doses of physic. Some grooms go so far as to assert, "No horse can be got into condition without physic." Not long ago a certain gentleman lent his name to the statement that the Turkish bath was the only means whereby condition could be obtained. Practical experience, however, com-

bined with philosophical examination, has proved the fallacy of such reasoning.

Some time ago the writer was thrown into conversation with a gentleman holding these tenets with extreme force. No argument could shake the view he held of the necessity for two or three doses of physic. "It had always been the practice, and would always remain so," he contended. It happened that an old vicious animal belonged to the stud, to which no man dare give a ball, nor could he be induced to take any medicament in his food, and the circumstance rushing to the mind, prompted the following queries in a way which looked at first like yielding up the point and turning the conversation.

"By-the-by, how many horses have you?"

"The old number, eight."

"Oh! is the old gray alive yet?"

"Alive! of course—when will he die? He's too tough, I assure you."

"How long have you hunted the old fellow?—if I remember rightly, some years."

"Yes, nine this season. He has carried me without a stumble, and cost me not a fraction for illness. I am never carried so well as when upon old Sergeant's back. No matter what country, he goes pell-mell, and I am sure to be in first."

"You say he never cost you a fraction through illness; do you mean me to infer that he has never been ill?"

"Quite so."

"But if he were ill, physic would be of no use to him; he refuses to be balled if I remember rightly."

"Why, the old un himself couldn't do it. Such a vagary he'll kick up if you only hold out a ball to him. Oh! he's a cunning old dog."

"Then allow me to inquire farther, if you please, How did you succeed in getting him into condition for hunting?"

The reader will understand our friend was fairly caught in his own trap, and afterwards always maintained a perfect silence in reference to the necessity of physicking a horse's inside out for the purpose of gaining condition.

The Turkish bath is also by some used under the idea that there is something always to be got rid of which militates against condition, and the poor creatures are parboiled and sweated unmercifully.

The art of getting a horse into condition lies totally apart from either of these processes. Hundreds of horses are brought forward every year without them, and on the score of what *can* be done, and *is* done every day of our lives, we appeal for our noble servant, and beg he may be spared this useless and aggravating treatment, except when illness demands it.

Condition is that state of the muscular system in which the body is strong, healthy, and capable of endurance under prolonged action. Muscle

has to be built up and thoroughly developed. Every one knows the blacksmith's arm or the legs of the *danseuse* become thicker by the exercise. Their action stimulates their growth, and when after a time they are so developed, they may be said to be in perfect condition.

The muscles of the horse also admit of this gradual development. It is caused by their being regularly exercised, and drawing to them the nutrition from the blood which has first been put into that fluid from the food. Regular exercise causes the body to rid itself of all hurtful substances. Good food produces good muscle; and unless there are special circumstances to consider, nothing else is required to produce condition, excepting regularity of system.

The effect of physic is to weaken the system and retard the development of muscle and formation of good blood. They are similar to bleeding, but a little less intense. Professor Dick was wont to state in his lectures, that "physicking horses in order to get them into condition is carried on to an absurd degree, as many as three doses of physick being given to one animal prior to the season in the space of a few weeks. The first ball," remarked the Professor, "was said to stir up the humours, the second to set them moving, and the third to carry them off; and," he naïvely adds, "which it frequently did by carrying off the horse as well."

THE TURKISH BATH, AND WASHING HORSES AFTER HUNTING.

There is nothing which militates so strongly against the success of any newly-introduced measure or plan as its immediate indiscriminate adoption. Regardless of all conditions and modifications which render the application difficult, partial, or unsuited, we frequently find people rushing to embrace and hastily adopt anything new. At the same time unsuccessful use and application become evident day after day. Such occurs in almost all departments of daily life. A new toy is soon in the hands of nearly every boy in the nation, and often caused to execute very foreign and absurd purposes. In medicine a new pill or lotion, well advertised and garnished with a dazzling label, proves attractive. A simple headache or a still simpler sore is cured, hundreds rush to write their testimony on such occurrences, and swear to a great deal more, and a world wide popularity is obtained. Believers are also found who never entertain the idea of failure, and go on fully convinced if these great preparations do not cure everything, it is not the fault of the composition, and are content to live in mystery and martyrdom.

The Turkish bath and practice of washing

horses have enjoyed such popularity—they have also endured degradation at the hands of their promoters. In a few accidentally well selected cases the results of the former were astounding, but when news of men dying in wet sheets, others barely escaping, and similar results among animals came to be talked over, men looked aghast, shook their heads, and said gravely, "Ah! this will not do." As much as they had been applauded, as much have they been condemned.

In some districts the Turkish bath has been used for horses, and found to answer very well when not pushed too far.

In strict language it should be called the Roman bath, the principles of that in common use having been carried out in Rome in the first instance.

When hunters return after a severe day, tired, dirty, and hungry, the great secret of restoration is to get them clean and comfortable in the least time possible. The bath and washing with warm water enable grooms to accomplish this very readily when all hands are at the post. It is when the assistance is small that time is lost, the animal starves, and probably at once takes severe cold.

Whenever the bath or washing is had recourse to, plenty of warm water and sufficient men should always be at hand. While water is being thrown on, the dirt should be well worked out of the

skin and hair. A good scraping follows immediately, and all hands "fall to" in order *to dry the animal at once.*

Experience in these matters points out that a modification of the Roman bath and washing house would be highly useful. It is not absolutely necessary that a horse should be again placed in a state of perspiration after the day's hunt. The washing may be used, but with the addition that the house in which the operation is conducted should be raised to a temperature of 100° or thereabouts, in order to assist in drying the animal's coat, which accomplished, part of the clothes are put on, and the horse is removed to his stall, when the remainder are placed. By these means, the operation is more quickly effected, there is less wear of the system than by the sweating of the bath, and animals are not so liable to take cold as the coat is rapidly dried.

The danger which is believed to occur when horses are washed after hunting and other hard work is not so great as some suppose. When all necessary precautions are taken, it may be almost said to be absent. *All that which is to be feared results from after-treatment.* Grooms sometimes ignorantly pursue a system with a small stud, few appliances, and deficient help, as if all these were absolutely present, and from such a want of forethought the greatest inconvenience arises.

Not long ago a professional friend related a circumstance which nearly cost him the sport of the season. He had engaged a groom in whom it was said was concentrated every essential of good management, having had good places and seen much experience among different kinds of horses. The groom was a staunch advocate for the washing of horses, and constantly advocated the principle under all circumstances. One evening after a hard day our friend returned, he and his horse well bespattered with dirt, but by gentle riding homewards the animal was quite dry on arrival. Notwithstanding this the groom, single handed, stripped the horse, obtained warm water, and was on the point of making a commencement, when the proprietor luckily entered and put a stop to the proceedings. Had he been allowed to go on, the chances are that with no other assistance the horse would have remained a long time wet, and consequently suffered from cold to such an extent as to lay him off work altogether.

In such cases as the one referred to, much more reliance is to be placed upon the use of a straw wisp or dandy brush, followed by the tools already named at page 33. There will certainly be no danger to be apprehended as by the adoption of a protracted washing.

It is impossible to lay down a code of rules which are to the letter suitable for all stables. What we have gone over already will be found

principally applicable as *general* regulations whereby the preservation of the health and usefulness of horses may be effected, which is the end and object of all the attention paid them. The principles that are carried out in one establishment must not be taken for granted as applicable to all others. This is a too common error; and from which mischief may unexpectedly occur some time or other. With slight modifications, certain regulations of an establishment may be adopted in others with success, all these depending entirely upon the nature of duties and the influences which are extended to them. Without taking these into proper consideration inevitable confusion will be the consequence.

GENERAL ARRANGEMENT OF STABLES.

Very little variation exists in the plan of arrangement in stables. Out of many hundreds of such buildings, as well as cowhouses, that I have visited, not more than a few attempts are made to depart from the one common principle of tying up to the wall, or manger which projects from it. The prevalence of the system surely indicates a very slow march in the way of improvement, and points out how few must be the resources where it is adopted without change.

The *tying up* of animals in numbers beneath one roof, separated by boarded partitions running at right angles to the wall, is a very defective system, and obstructive to the circulation of air in a proper manner, to say nothing of the great hardship which is inflicted upon the animal in being compelled to look at a blank wall continually when in the house.

In addition we usually find holes are either made or recommended to be placed over his head. Unfortunately, by making merely a hole we do not compel the foul air to go out there as we might be led to believe. Sometimes it may do so, when it cannot fail to rise upwards from the floor and carry with it the hurtful emanations of dung and urine. These pass beneath the very nose of the horse or cow, and are breathed to their detri-

ment. On the other hand, we may expect cold air to find its way through, and falling upon the head, produce a chilly stratum which gives rise to sore throats and other affections. The writer is aware of such a stable producing great damage at times. One gentleman returned three horses in succession to a dealer for ophthalmia, which always appeared in a day or two after each new animal entered the building. Proper arrangement of the stalls and efficient ventilation prevented the malady again appearing. Another stable, where thirty farm horses were kept, was always productive of tedious complaints. The cause was pointed out but disregarded, and the result was total blindness of every animal.

A third stable, which is owned by a gentleman who revels in a propensity for horse dealing in addition to other professions, during the short space of two years produced more sore throats, chronic coughs, and absolute whistlers, than many meet with in the course of a lifetime.

Imperfect arrangement induces all kinds of unsystematic and unscientific principles of cleanliness and ventilation. When cold air reverses the order of currents, straw is at once stuffed into the channel and another extreme brought about. Thus one evil stalks in the train of another, and we fail to recognise them frequently until too late. But not uncommonly the results of such imperfection tell upon the pockets of strangers, and a greater hardship is perpetrated.

In order to overcome the many disadvantages which occur from the present system of tying up horses and cattle to the wall, a plan has been adopted, in several instances with success, by which neatness of arrangement and appearance are in perfect keeping with other points. The stalls are placed in one or two rows, as in the old system, according to the size of the building, which should be wider than they are usually made.

Each animal has allotted to him a space equivalent to 1500 cubic feet, in which he can breathe freely. This would require a stall 6 feet wide, 9 feet long, with height above to the extent of 14 feet, 3 feet in front of manger, and 6 feet behind the stalls. The mangers are accordingly brought 3 feet clear from the wall and placed between the stall partitions. This plan thus leaves a foot-path between the wall and manger, which is used for the purpose of feeding the animals.

Behind each stall the space allowed answers for passage in and out and proper cleaning operations, while animals enjoy a purer atmosphere, and the whole admits of a better principle of lighting and ventilation to be carried on.

The *paving of stable floors* should be of the very best kind. When holes or other irregularities are present, dung and urine accumulate in fermenting masses and interfere with the health of the inmates. One of the best materials

is stone laid in large squares, or other forms, accurately jointed. Dutch tiles are very serviceable and cleanly. There are also square thick tiles used in some districts. These are made from fire-clay and burned. When laid down they present a very good and even surface. Asphalt, or coal tar, and common brick floors are used in some stables, but soon wear into holes. In cart-horse stables this is a great objection, their shoes doing great damage.

Cement floors are probably the best when properly laid down. The materials are composed of what is termed by builders "hydraulic lime." The compound has the property of immediately hardening when placed in contact with water, becoming quite solid and resisting external agencies in a most remarkable manner.

Stable drains are a great nuisance in many instances. They are either too deep and narrow, or are fitted with some peculiar arrangement or apparatus which is principally designed to exhibit the resources of a cast-iron foundry. The less these things are fettered by details the better. Complications are not always understood by grooms, and in consequence such an arrangement is likely to get out of order by neglect and even tampering. We were at one time great advocates for all drains in a stable being covered, their entrance only being seen, and that guarded by a trap. Further experience, however, has convinced us that plan is not the most correct

either in scientific theory or practice. Drain traps are likely to prove a greater nuisance than that which they were intended originally to set aside. On account of the drain becoming plugged up below by breaking, damage, or stoppage of solid matters, all the gases which result midway find their outlet back through the trap.

To remedy this, we now recommend all stench traps to be placed *outside* the building. The drains inside are to be made very wide and shallow, having a moderate fall to carry off the water. By this arrangement there is less danger from horses slipping, and no possibility of getting feet or shoes fast in them.

The *declivity of the stable floor* is frequently very injurious to horses' legs. For the purpose of carrying off the urine, or water during washing, the stall floor falls considerably from head to heel, as much as one inch to the foot being no uncommon estimate. This causes the animals to suffer great pain in the back tendons, and lays the foundation of lameness in that region. They are also found to stand back from the stall as far as the chain or halter will allow, and mischievous grooms strike with the first weapon they lay hold of, and are apt to cause injuries to the shoulder by the force with which the horse strikes the manger in rushing forward to avoid the blow. Sometimes he stands across the stall, and thus also irritates his attendants by

ruffling the bedding. The remedy is a *level floor*. But all to whom we make the assertion at once rejoin, "How are you to drain a level stall? Look at the cost of straw when the water cannot get off; and besides, you can never keep your horse dry." The matter has been arranged by the author, in many instances with success, as follows:—

The first object is to lay down a stout permanent flooring of thick paving stones well jointed, or other hard material, perfectly level, and behind the stall an open drain ten inches wide, and about two inches deep in the centre. This is either made of strong baked fire-clay, or cut out of thick stones. To drain the stalls there are cut by means of a chisel, three or four grooves running down the stall to the cross drain behind. Each groove commences at a part a little in front of the middle, very shallow at first, but as the drain is approached they become a little wider and deeper until the outlet is upon a level with the bottom of the drain. After this arrangement has been carried out the horses are not found to stand away back, or seldom across the stall, while perfect drainage is effected.

Wooden floors are used very extensively in coal mines to save bedding, and there can be no reason why the arrangement may not be introduced to the stables of large owners of cart and other horses above ground, where scarcity of bedding occurs.

As usually put down, however, they are a great nuisance, as they confine beneath them great quantities of dung and urine, and render the stench sometimes unbearable. To overcome this, and render the wooden floors both efficient and economical, the author had several stables fitted according to plans furnished, and which were found to answer admirably.

The first part of the plan consisted in pulling up the old floor between the roof supports, and laying bare the rock beneath. By means of a pick the surface was cut away behind, in order to cause water to run backwards, a fall of five or six inches being given to it.

Next three joists were laid longitudinally from manger to heel posts—one upon each side, and a third in the middle. The end at the manger is previously thinned down in order to cause each joist to lie upon the slanting rock in such a manner that their upper surfaces are perfectly flat and level. Upon the top of these, crosswise, are nailed strong planks one and a half inch thick. At the part near the manger they are close together, but from the middle to the bottom of the stall they are kept three-eighths of an inch apart, to admit of the urine passing below.

Another feature consisted in making the whole of this to fit the stall and admit of being raised at the heel, so as to enable the groom to sweep all the accumulations from beneath. The

floor behind the stalls consisted also of a similar arrangement, and when each part was in its place, no drains were to be seen. Water thrown down found its way readily and carried the filth effectually, by which the stables were rendered sweet and wholesome, while little trouble was required to keep them so. If the spaces between the planks become blocked up, a piece of hoop iron, or an old knife, is used to clear them.

Loose boxes are invaluable where horses are kept. No stable where there are more than one horse should be without them. They are far preferable to stalls under most circumstances, but are not always admissible, on account of deficiency of room.

A loose box is a great advantage to a sick horse. For that purpose it should be situate at a distance from the usual stable, as a guard against infectious or contagious diseases. It should be well lighted and ventilated by the wall below or door, and above by the roof, as already described at page 30. The dimensions should be not less than twelve feet square, with twelve feet space in a perpendicular direction also. The floor composed of hard impervious material, slightly falling to the centre, so as to cause urine, &c., to flow off by means of a very shallow and wide open drain to the outside.

The doors should *slide* along the wall on the outside if possible; an arrangement which is more approved than their being hung upon

hinges. When doors are hung upon the outside, horses have been known to draw the door towards the wall by their head, and thus nearly hang themselves. To allow of fresh air, a rail or bar door is useful. It should fit the doorway from top to bottom. Half doors are objectionable.

THE CAUSES OF DISEASE, AND ITS PREVENTION.

This is a subject upon which volumes might be written. At present the information has little weight in many quarters, either from a lingering prejudice in favour of old customs, or incapability of accepting the full nature of the truths contained in the premises.

In a majority of instances disease arises from mismanagement and a want of the proper principles which insure health. Imperfect stable management is a prolific source. Much of this has already been detailed. If we need incontrovertible proof, we have but to turn to the racing, hunting, and other stables, where all is order and perfection. There disease seldom appears. If it does, in ninety-nine cases out of a hundred it is of the most intractable character, and traced to be dependent upon causes beyond control.

Among many of our farm and town studs, feeding upon inferior provender, and the use of so called "alterative" medicine, works great mischief. The common principle is to allow mismanagement to proceed for some time, and constantly drug the animals with medicines of which the groom can know but very little. The

use of nitre (saltpetre) is frequently attended with baneful results. The lowering and cooling properties of this salt are such that when it is supposed that one disease is driven out, the animal is not unlikely to be affected with sore throats, coughs, and colds.

When horses are treated properly, then exists a state which we call *health*. That word means more than is usually ascribed to it, and signifies that condition which admits of *no* improvement. Of what use then are the medicines so commonly and constantly used to nauseate and interfere with the animal functions? Such things cannot be administered without producing a disturbance in the system. That disturbance is not unlike disease, and is used by the medical man to overcome, as it were, any unhealthy condition which he may be called upon to eradicate.

Into no greater mistake can owners and stablemen fall than to suppose it is consistent with reason to drug an animal in health, or that medicines given regularly prevent disease. The reverse is frequently the result. But tell such people that disease is always, or nearly always, the result of mismanagement, neglect, or want of forethought and knowledge, they would laugh in derision. "We *do* know how to manage," say they; "give us information *how to cure*." Such was the statement of an individual a short time ago. He had boasted how he managed, of his profits, and how he kept his animals in health,

but nevertheless lost greater part of his stock by *mis*-management

It is far better to prevent than to cure.—The laws of the former are better understood than the laws of the latter, and should comprise greatly the foundation of every man's ordinary education. But how expensively and roundabout do many choose to go to work. Actually allow disease, the thief, to enter a stock—the stable, and even favour its entrance by taking off the bolts and bars, *i.e.*, lowering and devitalizing the constitution by medicines when the animal is in health. After the steed is stolen, lamentation occurs, and a lock—the veterinary surgeon—is sent for, and *expected* to restore that which is lost.

And what interest, we may ask, can there be in a professional man urging attendance to the correct principles of routine and effective management? Can he be convicted of selfishness? Does he sell his physic by the advice? Neither, but in execution of the trust committed to his charge, labouring under the full conviction that, after his years of study, nature is not to be trifled with, even though it be against his pecuniary interest, he knows it is his *duty* to expose the fallacy and insecurity of the support on which rests the idea that health can be maintained under such imperfect regulations and treatment. It amounts to a species of cruelty to animals, and owners and stablemen would profit much more by the study of duty and management, than that of

the actions and uses of medicines which is an affair of a lifetime. Let them become perfect in stable management, it will gain them far more lasting emolument than they can hope for in a scientific path which their feet are not designed by nature to tread.

An instance of the absurdity of these daily mistakes may not be out of place. A groom recently consulted the author and desired to have medicine, naming the constituents, and stated he had been with a medical man and knew all the properties of drugs.

It transpired the animal for which the medicines were required had been dosed for months, under the supposition that she was suffering from worms. "But," said he, "it's all to no purpose, she gets no better, and I thought I would give *you* a trial." Searching inquiries were instituted, and no doubt being raised as to the proper nature of the ailment, and its entire dependence upon causes hidden from the applicant, he was sent home with instructions "to give good food at regular intervals, exercise daily for two hours when not at work, and either put a muzzle upon the animal after feeding, or allow her only tan or sawdust for bedding."

The advice was, however, thrown away. As he could not obtain medicine which was known to be not required, and even dangerous, another was applied to; the man physicked, and the mare died suddenly, her carcass blocking the entrance

to the stable when the morning visit was made.

This animal was a ravenous or greedy feeder, a condition which exists as a result of some morbid state of the digestive organs, brought about originally by neglect and mismanagement. Such subjects often look rough and out of condition, and medicine aggravates the case if prescribed wantonly. The extent to which a groom should go is to carry out the advice already given, and if medicines are needed let them be prescribed by one who has studied them in a way he cannot.

SIMPLE RULES FOR SHOEING, AND MANAGEMENT OF THE FEET OF HORSES.

Lafosse, a celebrated French veterinarian, said, "*Pas de pied, pas de cheval,*" which British writers interpret, "No foot, no horse," and thereby indicate the amount of importance which is attached to the member, as forming an integral part of the animal body. Many have enlarged upon the theme in various ways, with not unsuccessful eloquence; others have sown broadcast a mass of error, their observations being superficial through their want of preliminary training.

To preserve the foot is to maintain the capabilities of the animal in a remarkable manner. Its anatomical structure is of the most wonderful character, and suggests the advisability of greater respect than is usually paid to that important part.

The *hoof* is a fibrous box or case, in which is accurately fitted the softer and sensitive parts. Its growth is secured from above at the coronet *downwards,* where a special arrangement exists for its formation. The sole and frog are also developed and formed by structures of counterpart shape on the inner side.

The hoof is capable of a limited amount of

elasticity, and it resists shocks in a remarkable manner. It conducts heat badly, and on these accounts proves highly serviceable for protection, while its constant growth, thickness, and insensibility, admirably adapts it as a substance to which an unyielding defence, the shoe, can be applied. In shoeing horses' feet it is a mistake to cut, burn, and rasp them so much as is usually done. It must be remembered that scraping or biting our finger nails renders them sore and useless as a defence or means of prehension. How much more then do we render the hoof of a horse by these reducing measures, unable to act as a means of defence and resistance, to bear the weight, and hold the nails by which the shoe is attached? The better the foot, the better must be the protection. The animal will perform his work more readily and with greater safety, and last the longer. Many forget the horse has to carry weight beside that of his own body, or compelled to draw loads and suffer concussion on the stones at a high speed. Then why cut away from the foot that which the animal requires so much? Some say it is to prevent the foot growing out of shape, but that is a mistake. There is more mischief occurring (and nothing causes a faulty shape as soon) from the practice of reducing the hoof, that from any other plan adopted.

Each part of the hoof is possessed of different properties. The outer part, the wall or crust,

grows downwards, and the ends of the fibres of which it is composed are presented to the ground. On this account it is more resisting to the wearing forces, and does not fall off in flakes or scales. The ends of these fibres, or, in other words, the *ground surface* of the wall or crust *only*, should be absolutely cut away, and that principally towards the toe, where the greatest growth usually takes place in health.

The *sole* and *frog* are capable of what is termed exfoliating, or, in other words, detaching their waste parts in flakes or scales. None but loose portions should be cut away. These parts are quite capable of their own reduction, and need *no* interference. When shoes are being fitted, do not apply them too hot, particularly to thin shelly feet. If the feet are good, and no cutting is carried on, as just directed, a hot shoe will do little harm.

Use well-drawn nails. Thick-necked nails "bind" in the holes of the shoe, and frequently press upon the sensitive structures of the foot, causing severe lameness. Besides, they act as perfect wedges to the hoof, splitting off portions to its detriment.

Let the nails be pointed with a long lead, and nail holes in shoes be coarse, *i.e.*, not too near the outer web or edge. In this there is less danger of laming horses than by the fine seam and snub pointed nail. The former nail is driven *straight down,* always having a tendency to go

away from the sensitive structures, but the latter has to be driven *inwards,* by which it is almost certain to lame by a "prick" or "bind" as it approaches too near.

Shoes should always be made to possess a perfectly level surface for the foot to rest upon. That part of the foot which comes upon the shoe is to be the ground surface of the wall. No part of the frog or sole need touch the shoe.

The *shape of shoes* is an affair of little moment. There is no call for beauty or grand work. The secret of shoeing is to afford a protection which the hoof alone cannot give, and that is the point to study.

Bar shoes consist of the ordinary shoe, the heels being turned round to meet, and afterwards welded; or a bar is placed across in front of the heels. Their use is adopted in order to throw a portion of the bearing upon the frog, to relieve other parts which may be injured or diseased. If the frog is too small to reach the bar, punch a hole in it, and rivet a piece of leather on, to press upon the frog, and thus gain the desired bearing. Bar shoes are very useful for curing running thrushes, if the weight can be borne.

Leather soles are useful agents to protect feet which have been cut away in operations, and prevent the access of dirt. As a means of preventing concussion the writer has reason to doubt their efficacy. Shoeing as at present carried on is to be likened to breaking a man's

head, and the leather sole to the plaster. It is a too common practice to pare the feet almost like paper, and then put on leather soles. If healthy feet are treated judiciously they possess a natural protection, and need no leather soles.

Stopping for feet is quite unnecessary. Grooms and smiths call loudly for stopping in order to pare the foot easily, and forget that as they pare the horn dries more rapidly, and therefore is the harder. Let them try the method already laid down, and they will find the foot is *soft* beneath the scales which fall off as soon as the shoe is removed, showing that nature uses her own stopping, which is far better than clay or cow dung. The same remarks apply to wet swabs and other allied treatment.

Horses' feet should always be kept as dry as possible when healthy. Their natural condition of usefulness as a protection consists in being hard and bulky. If disease overtakes them, poultices and fomentations are then needed, as prescribed by the veterinarian. No greater mischief occurs to horses' feet than that which arises from the effects of wet straw yards and pastures. The salts that are in the fluids found in those places reduce and dissolve the hoof, and render it unfit as a protection. Such places are best avoided unless well drained.

Foot ointments when properly made are very useful. Equal parts of Stockholm or Archangel tar and mutton suet are to be melted together,

and a small portion brushed round the hoof each day. This will be found the best and cheapest preparation. Grooms, however, are often very fond of some high sounding and unintelligible name for a horse preparation, and would rather pay five shillings for mutton suet or bacon fat and the refuse of kitchens coloured with copperas, if it has only a long name such as,

"CUITOMOUTONETTAROPODOSUNGUENTON,"

or such like mummery, than be content to use a better remedy which may be obtained for one-tenth the price.

Foot ointments find their basis in the Archangel tar very properly. That agent prevents evaporation, and promotes the necessary elasticity of the hoof. Grease and fats with other admixtures are very prone to render the hoof brittle. As for curative effects being produced on the sensitive part by dressing the hoof outside, there is no evidence to show beyond what quackery swears on false premises.

Cutting, brushing, &c.—These are terms by which is understood that damage of greater or less extent is inflicted, generally at the fetlock of one leg, by the opposite foot during action.

In the former case the skin is usually cut or very much bruised, and great lameness occurs, while in the latter the hair is slightly removed from the surface by attrition, and the skin suffers in a less degree. Horses, however, may "brush"

for some time, and suddenly become desperate cutters in consequence of repeated injury being done to the parts.

Cutting sometimes takes place in animals with high action, when the toes are naturally turned inwards, and the foot is carried towards the opposite leg. In this case the seat of injury is below the knee, and great lameness occurs, sometimes attended with permanent swelling of the bone, called a "splint."

The causes are generally traceable to preventible circumstances. Animals are either out of condition—weak—or they are driven too fast and worked too hard in a variety of ways. The victims are usually the horses of butchers, bakers, and other fast drivers, omnibus and cab horses especially—in fact, cart and other horses will be guilty of the practice if badly kept and harassed about. When work is prolonged too much and animals are heavily shod, they become "leg tired" in stable phraseology, and the action becomes slovenly and false.

The remedies are careful feeding and work at all times, but especially when the latter is unavoidably prolonged. In the matter of shoeing much may be done. It is the fancy to place upon the feet the most fantastic, and even the most clumsy shoes, and there are scores of smiths who may be found ready to accept a wager "to take any horse off the cut." There is no need for these, or even to mutilate the hoof,

as is too commonly done. If great lameness arises, let the injured parts receive immediate attention, and keep the animal at rest. Next, place on the feet *very light* shoes, and when put to work let common humanity prevail. Horses are not machines or steam-engines, that they can go incessantly; if their periods of labour are not properly regulated, and the amount be too exacting, the animal constitution must give way. To those who are willing to recognise early signs of degeneracy, we beg to name cutting and brushing; if they are not attended to, further aggravation is succeeded by serious complications, as broken knees, fractures, &c., to the animal, besides others of an extraneous character.

Groggy feet, or those understood to be affected with disease of the coffin joint, require special treatment, in order to limit as much as possible the suffering of the animal. There is little of service to be done in a medical point of view except by dividing the nerves going to the part, thus to cut off sensory communication. After such operations great care is required in driving the nails, for if the sensitive parts are wounded, no evidence of pain being felt, inflammation and suppuration follow, and in some cases sloughing of the entire hoof. The smith should always be informed when he has such feet to deal with.

Groggy feet do not require shoes of great weight: They should be rounded off or turned up at the toe to diminish leverage in the first

act of progression. In the variety of horse most subject to this disease, five nails, or even fewer, may be sufficient to hold on the shoe, as the foot is always very firm, and the animal cannot endure severe exertion. A light hammer should be used, and the blows sharp and in rapid succession, to avoid shaking, which always occurs with heavy tools used without caution.

The feet are to be prepared according to rules already given at page 100.

Sidebones among cart-horses are very common. When the natural elasticity of the cartilages which surmount the wings of the coffin bone is lost, the parts are found to have been involved in the process of inflammation and subsequent conversion into bone (ossification.) The motion of the joint is more or less interfered with, concussion causes pain, and the tendency is towards an increase of size.

If the feet are properly preserved and prepared for the shoe, all that is required is to keep the heels and toes low and stiff, and beneath the sidebone; the heel of the shoe is best made to pass *straight backwards from the quarter*, in order to extend the surface of bearing. The foot should be hammered as lightly as possible.

For *ring bones* the toes and heels of shoes should also be kept low, in order to avoid concussion

In all cases, however, where these affections are of long standing, and medical treatment pro-

duces little or no good, lameness being persistent, the animal will be of scarcely any service for town work. It is best to place them upon soft land in the farmer's hands, where many kinds of light work may be performed without any sacrifice of feeling or increase of suffering to the animal.

Under certain aggravated conditions of the three forms of disease we have been considering, the advice of a veterinary surgeon should be sought as to the policy of such animals being retained whose life can only be one of protracted misery.

Pumiced feet, so called, are of frequent occurrence among cart-horses, but others also are liable when mismanagement occurs. The appearances which give rise to the term are convexity of the sole and concavity of the wall, with great tendency to elongation towards the toe. They are the outward manifestations of an inward diseased state of the sensitive and secreting structures—hence the deformed shape and growth.

Shoeing may greatly palliate the case, but nothing is known that will cure it. Put on a strong shoe having a great amount of cover to protect the sole. Seat or hollow out the upper surface, that no part but the wall shall receive weight. Let the heels and toe be low and stiff; keep the toe of the hoof moderately short; avoid paring the sole, or otherwise reducing the foot; use well-drawn nails, put well up; keep on the

shoe always as long as it is secure and serviceable, so as to avoid breaking the foot by too frequent removes. Use daily dressings of hoof ointment, inside and out, after the foot is cleaned, by which means many animals will be enabled to perform a great amount of work with ease and cheerfulness.

Pricks and binds are the natural consequences of the system of shoeing with nails. Some persons ignorantly suppose they can only occur from carelessness. They must, however, be informed that workmen of the best class, well known for their superior skill and care, are liable to cause lameness by a prick or bind with the nail in shoeing. There are many causes for it, most of which are beyond his control. Great mischief ensues frequently after such an occurrence, and the difficulty commences in attaching the blame to the proper person. In ninety-nine cases out of a hundred such ought not to occur, yet it does, and how? As soon as a horse is lame he is usually walked off to the smith, who receives the information that he has pricked the horse. Knowing the estimate placed by owners generally upon such a case, the smith naturally endeavours to prove the contrary, and in many cases succeeds by ignorance of the proper symptoms and mode of manipulation, in having the horse sent home with the qualifying announcement, that the lameness is in the shoulder or other place, "but not in the foot."

At this stage, simple matters would set the

animal sound in a few hours, but alas! too frequently delay occurs, or some quack treatment is pursued, and at length matter issues from the coronet, and the foot is diseased and disfigured for life.

In all cases of lameness, the shoe should be removed, and foot properly examined by percussion with the hammer, and pressure by the pincers. The situation of nail holes in the hoof will determine if some are too near, and evidences of pain will usually point to the part under trial.

If the lameness is not great, mere removal of the shoe and nails will mostly be sufficient; or a warm poultice of bran or sawdust may be applied for twelve hours. If, on the other hand, the pain and lameness be excessive, having *gradually* increased in severity, matter may be suspected to be present within the hoof. Exploration with the knife should follow percussion and pressure, by which the precise spot will be detected, and exit thus given to the imprisoned pus will afford almost instant relief. Poultices preceded by hot fomentations will be required, besides other treatment, to allay febrile excitement and expedite the case, for which a qualified veterinarian is best to dictate, according to existing circumstances.

It is advisable in all cases of lameness to apply at once to a veterinary surgeon; much tediousness and disappointment as well as expense may be avoided. As in many other cases, "the first cost is the least in the end."

The shoeing of lame horses requires special measures, and could not be treated any further in a work of this kind without extending it beyond ordinary limits. The instructions already given will in greater part be found applicable. By their observance much harm may be avoided, and the usefulness of our valuable servants greatly extended. Brittle feet, so called, may be wonderfully restored in a short time, the falling off or losing of shoes greatly avoided; and remember that the greater evil exists in doing too much, rather than knowing what should *not* be done.

Horse-shoeing in coal-mines fully exemplifies this statement. Here, where the smiths have many horses and ponies to shoe after working hours in the pit have ceased, the benefits of not doing too much are to be observed. There is seldom to be seen a bad foot. Except where the roadways are saturated or overflowing with water having mineral salts in solution, such may be said scarcely to occur. Animals are also very seldom lamed in shoeing. When they run upon dry ground the feet grow thick and strong. At each shoeing the smith merely cuts down the foot to produce a level surface, "lets in the clip" to the required distance at the toe backwards, nails on the shoe, clenches and roughly rasps off overhanging portions. By these means the shoes are seldom lost, and the best of feet are found.

It is a pity the system cannot be exhumed in

greater part from the coal-mines, and transferred for the benefit of our town and other horses in parts where proper care is not exercised. Anything likely to prove beneficial, even if brought from a coal-mine, would be acceptable, and the value of our horses demands this consideration.

POULTICES AND FOMENTATIONS.

There is frequently great need of these agents as auxiliaries to the treatment of disease which arises among horses. In contradistinction to the great amount of good which they may be caused to effect, much harm may ensue by ignorance or misunderstanding.

A poultice is employed for two purposes—to apply heat and moisture conjointly to a part, or cold and moisture. We have therefore warm and cold poultices. Fomentations, on the other hand, are always hot. They consist usually of water alone, or infusions of some plant whose active principle has some medicinal effect.

The object in either case is to perpetuate in a part by external means, either a degree of heat or cold which cannot be effected otherwise, in order to promote some desirable curative action. To render these means effective, their use must be long continued, and the desired temperature maintained as near as possible. A poultice loosely applied, or a fomentation imperfectly maintained, produces absolute harm by the evaporation and cooling which ensues, and its effects upon the internal structures. When parts have been fomented or poulticed, they should either be dried or protected by covering from the atmosphere.

In the treatment of wounds or abscesses, neglect of these precautions produces serious obstructions to the successful recovery of a case, and the medical attendant too frequently incurs undeserved censure.

SENDING FOR THE VETERINARY SURGEON.

In the hurry and excitement consequent upon sudden accident or illness among animals, messengers are frequently despatched with imperfect reports, and therefrom much error and inconvenience results. These facts may be sufficient excuse for appending a few plain rules to be observed in order to avoid the occurrence of untoward events, and rather expedite matters towards a favourable if not successful issue.

First.—As far as possible always send a written message. Never trust verbal messages to boys or illiterate persons; and let the name and address be legibly inscribed.

Second.—Send *early,* that the practitioner may see the case before it is aggravated by serious and irrecoverable complications. "A stitch in time saves nine," and the first cost may avoid the necessity of incurring greater ones.

Thirdly. — Afford as much information as possible as to what has been observed of the *symptoms* manifested by the animal. The practitioner may be greatly assisted in preparation of remedies to take with him. Never send such a message as "You are to come directly, we have a horse (or cow) badly." This is a very useless and perplexing statement.

Fourthly.—Avoid absolute doctoring the animal for which you desire a professional opinion. Attend implicitly to the instructions received, and success will be more certain.

Fifthly.—Never withhold information upon matters which are calculated to throw light upon the causes, nature, symptoms, &c., of the ailment. Absence of such paralyses the hands of skill, and prevents the adoption of proper measures.

These may admit of some variation under certain circumstances, but in the majority of cases, if carried out properly, they will effect more good than is to be expected at the present day in many places, from the utter disregard of system which prevails, particularly in agricultural districts.

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THE END.

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